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TRIAL LABOUR AS AN OBSTETRIC PROCEDURE TODAY

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The aim of this paper is to assess the value of trial labour in present-day conditions. The obstetric atmosphere has changed considerably since trial labour first became recognized as an entity. Anaesthesia is a highly developed adjunct in the hands of the skilful. Intravenous therapy and electrolytic balance have an important place in the maintanance of condition for operation. Antibiotic and chemotherapeutic measures are life-saving. The lower-segment Caesarean section can be rapidly and expeditiously performed. Respect and reverence for the unborn life has never been higher.

What exactly is a trial labour? It is time for us to take stock. Surely, all things equal, it shows where the obstetrician's skill ends. The greater the number of trial labours, the lower the standard of obstetric skill. Can one say that one delivery will be normal and that another should have an operative delivery before labour has started? Yes, one can, within broad limits. One hears much said of the 'fortitude' of a patient, the 'mouldability' of a head, the strength of uterine contractions, and many more factors. But are these factors not assessable by clinical acumen bred by experience and observation? This touches upon experimental clinical research. To illustrate the point, I have often wondered if obstinate constipation or pyelitis in pregnancy is not a pointer to a probable hypotonic uterus during labour, contributing to failure in a trial labour. The tokometer has been a useful adjunct. Further, does the woman who gives a history of primary spastic dysmenorrhoea develop the spastic, hypertonic type of uterine contraction, leading to distress? Is it not logical to interfere earlier in cases of post-maturity because of rigidity of the foetal skull and placental senility? So, also, should not a history of threatened miscarriage preclude a trial labour because of probable placental insufficiency? Is not fortitude in a patient influenced by mental instability (material or spiritual), or anxiety about the outcome? The tendency should be away from the mechanistic approach to trial labour and towards the functional approach.

Once it has been decided to conduct a trial labour in a 'border-line' case, the recognition of the point for surgical interference becomes top priority. Any layman could be taught to assess foetal distress by heart rate and meconium, or maternal distress by pulse rate, blood pressure, respiration, temperature and dehydration. Not every obstetrician can forecast these events. The unenlightened say that those who interfere until after a full trial labour (2 hours with full dilatation of the cervix) or before maternal or foetal distress supervenes may never have needed to interfere. To them I will say that I would consent to a full trial labour provided it is admitted that a decision is persistently in the balance. We know the toll taken by slowly progressing labours of more than 48 hours. The stage of foetal and maternal distress, due to mechanical and functional causes, should never be reached, for we have warning of impending danger; but once it is reached, the trial labour should be ended. There are, of course, exceptional causes of distress occurring rapidly, such as a prolapsed cord with immediate cessation of pulsation, a rupture of the marginal sinus of the placenta, or a rapid fulminating hypertension.

This brings me to my next point—the evaluation of progress in trial labour, on this I may be subjected to criticism; it is not, however, a revolutionary idea that has prompted me to say what follows, but what I feel to be clear logic. Tradition has it that only rectal examinations are to be made until the membranes have ruptured, and then a vaginal examination is carried out to discover (among other points, e.g. station of vertex, moulding, and dilatation and application of cervix) whether the cord has prolapsed. In this latter event, the child may be dead before interference is instituted. If a vaginal examination is made while the membranes are still intact, a presenting cord may

be felt pulsating, which, in the possible presence of disproportion, may be the indication for a life-saving Caesarean section. Even the most skilful will admit how difficult it is to diagnose a cord *per rectum*. Pulsations may not be felt if the matrix of the cord is against the examining finger through vaginal and rectal wall. Any irregularity felt through the os may be taken to be 'scalp folding'. The pelvic dimensions are best assessed in labour, with its associated softening of the soft parts. This factor may have an important bearing on the length of trial labour allowed. Finally, may not a casual repetitive rectal examination, often unsterile, be a greater source of danger than a sterile thought-out vaginal examination? Is it not more desirable to have a sterile gloved finger against the os than the vaginal wall pushed into the os? If vaginal examinations are only to be made after the membranes rupture, then paradoxically it is better for them to rupture early. If sterility is mistrusted, let penicillin be started before rupture of the membranes instead of after. If penicillin reactions are feared, let one dose of sedative or analgesic be replaced by an anti-histamine.

I am not advising frequent and random vaginal examinations. Each case should be conducted on its own merits. I suggest that a vaginal examination should be made when labour, as assessed on clinical grounds, is established. This will allow of pelvic revaluation, and the diagnosis of cord presentation. At this stage an intramuscular injection is given of 10 mg. of vitamin K, and ½ million units of penicillin. The penicillin is repeated twice daily for 5 days. If the systole of the contraction is well maintained and the contractions are 1 in 10 minutes, another vaginal examination should be made in 10 hours' time, if necessary; but if the contractions are 1 in 6 minutes, the vaginal examination should be made in 6 hours' time instead, unless there is clinical reason to examine earlier, or the membranes rupture. A cord may present or prolapse between internal examinations. Let me here make a plea for listening to the foetal heart-sounds during and just after a contraction, as well as between contractions. In my experience, once a three-finger dilated os is present, either delivery will be imminent within 12 hours or the prognosis for normal delivery is negative.

An intravenous drip in the latter stages of a trial labour may alter the prognosis and so might prophylactic forceps delivery. In a prolonged successful trial-labour the weight of the infant should be noted. There is an indication for premature induction of labour in the next pregnancy. If induction is carried out, it must be remembered (to coin a maxim) *Once a trial labour, always a trial labour*. The probably improved uterine action and prepared birth canal may be offset by a larger baby and diminished watchfulness on the part of the doctor.

Perinatal statistics are important. There is no second chance for a failed-trial-labour patient (e.g. where trial labour has terminated with perinatal foetal mortality or injury, or in Caesarean section). An elective section is performed in a subsequent pregnancy. In a trial labour, full reassessment must be made after 48 hours of established labour, for foetal and maternal morbidity and mortality are greatly increased after that time. In primigravid patients over 35 years old, and those with 5 years or more of infertile union, half this time is taken as the limit for reassessment.

CASE REPORT

A Bantu female aged 28, married for 11 years and treated for infertility, attended the antenatal clinic. At clinical assessment the promontory of the sacrum was tipped easily. X-rayed pelvimetry revealed the true conjugate to be 9·5 cm. Other pelvic measurements and shape being within normal limits, and the vertex being unengaged at term, a trial labour was determined on. Labour commenced at or about term. The contractions were hypertonic and spastic. Numerous rectal examinations showed slow dilatation of the cervix, and descent of the vertex. After 42 hours, rectal examination revealed full dilatation. At that stage, the previously normal foetal heart-sounds ceased. Vaginal examination showed a cord presentation with the vertex at the level of the ischial spines. The cord was not pulsating: and the membranes were ruptured and a fresh stillborn child delivered.

Comment

1. There was infertile union for 11 years, and after 24 hours of labour the os was 3-fingers dilated. The delivery was not imminent after a further 12 hours. Should the labour have been allowed to continue?
2. Rectal examination 'missed' the cord. Vaginal examination earlier might have altered the prognosis.
3. Abnormal spastic uterine action may have been due to associated anxiety regarding outcome.
4. No further trial labour for this patient. She should have an elective Caesarian section at subsequent pregnancy.

SUMMARY AND CONCLUSION

1. All things being equal, too high a percentage of trial labours denotes diminished obstetric skill at assessing 'border-line' cases. A large number of successful trial labours may prove the fallacy of statistics.

2. The tendency should be to stress the functional as well as the mechanical aspect of trial labour. Clinical research will lead to the predicting of entities previously thought unpredictable.

3. If surgical interference is necessary, it should often be made before the os has been fully dilated for 2 hours, and before maternal or foetal distress, with their associated maternal and foetal mortality and morbidity.

4. A break with tradition regarding vaginal examination is suggested, with a method of systematizing examinations. The disadvantages of rectal examinations are discussed.

5. Adjuncts for a successful outcome of trial labour are listed.

6. In subsequent pregnancies, this maxim should be remembered—'Once a trial labour, always a trial labour'.

I wish to thank Dr. J. H. McLean, Superintendent, Provincial Hospital, Port Elizabeth, and Dr. J. L. G. Warr, Superintendent, Livingstone Hospital, Port Elizabeth, for permission to publish this work.

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EDITORIAL

ORAL PREPARATIONS FOR DIABETES MELLITUS

Insulin is really a remarkably good drug for the treatment of the carbohydrate abnormalities of diabetes. Unfortunately, although it has very largely abolished acute diabetic deaths in coma, it has not prevented—in fact it has unmasked—the 'vascular degenerative complications'. The second drawback is that it is inactive by mouth, nor does it appear likely that any preparation of this polypeptide hormone will be made for oral administration. Many other substances have been mooted and have been tried as oral anti-hyperglycaemic agents. Decamethylene diguanidine ('Synthatin A') apparently was able to reduce blood sugar, but was too damaging to the liver. Cobalt compounds, which cause destruction of alpha cells of the islets of Langerhans, are likewise too toxic. Diethyl dithiocarbamate, which has been effective in certain experimental types of diabetes, is too unreliable. Oestrogens will apparently protect an animal against the destruction of the beta cells of the pancreas caused by alloxan, but have no action in human diabetes. There is a theoretical basis for the trial of nicotinic acid but, if this has any effect at all, it is certainly not great. In the Eastern districts of the Cape a herb known as *bitterblaar*, and sold there as 'vinca' and 'covinca' is taken by diabetics, but there is no good evidence of its efficacy. Recently there have been a number of unethical products offered for sale, consisting of mixtures of up to a dozen substances or extracts of doubtful potency. The great danger of these preparations is obvious. The severe insulin-requiring diabetic omits his injections and arrives at hospital in coma.

Now we have a new substance, elaborated in Germany, known as BZ55 or 'carbutamide'.[1,2,3] It was observed that certain sulphonamides were able to reduce the blood sugar and even produce symptoms of hypoglycaemia in normal animals, but these early compounds caused damage to the liver. The newer sulphonamide derivative N-sulphanilyl-N^1-n-butylurea, or carbutamide, however, was found to retain the blood-sugar-lowering properties but to be devoid of acute toxic properties.

VAN DIE REDAKSIE

MONDELIKSE PREPARATE VIR DIABETES MELLITUS

Insulien is 'n besonder goeie middel vir die behandeling van die koolhidraat-stoornisse van suikersiekte. Hoewel dit die akute diabetiese koma-sterftes grotendeels opgehef het, het dit ongelukkig nie die ‚ontaardingskomplikasies van die bloedvate' vermy nie; insulien het inteendeel hierdie komplikasies ontmasker. Die tweede nadeel is dat dit mondeliks onwerksaam is, en dit is blykbaar onwaarskynlik dat enige preparaat van hierdie polipeptiede-hormoon vervaardig sal word vir mondelikse toediening. Baie ander stowwe is reeds oorweeg en probeer as mondelikse middels teen hiperglisemie. Dekametileen diguanidien (‚Synthatin A') was blykbaar in staat om die bloedsuikergehalte te verlaag, maar het té beskadigend op die lewer ingewerk. Die kobaltverbindings wat die alfa-selle van die eilandjies van Langerhans vernietig, is ook te vergiftigend. Diëtiel-ditiokarbamaat was effektief by sekere eksperimentele soorte suikersiekte, maar is te onbetroubaar. Die estrogene beskerm 'n dier blykbaar teen die vernietiging deur alloksaan van die beta-selle van die alvleesklier, maar dit het geen uitwerking op menslike suikersiekte nie. Daar is 'n teoretiese grondslag vir die probeer van nikotinesuur maar, as dit wel nuttig is, is sy invloed maar baie gering. In die oostelike distrikte van die Kaapprovinsie word 'n kruid wat bekend is as ‚bitterblaar' wat bemark word as ‚vinca' en ‚covinca', deur suikersiektelyers gebruik, maar daar is geen afdoende bewys dat dit doeltreffend is nie. In die afgelope tyd is 'n aantal onetiese middels bemark, bestaande uit omtrent 'n dosyn stowwe en ekstrakte van twyfelagtige krag. Dit is duidelik hoe gevaarlik hierdie preparate is. Die akute insulien-behoewende lyer laat sy inspuitings vaar, met die gevolg dat hy in 'n koma by die hospitaal aankom.

Nou het ons 'n nuwe middel, vervaardig in Duitsland, wat bekend staan as BZ55 of ‚karbutamied'.[1,2,3] Dit was opgemerk dat sekere sulfonamiede in staat is om die bloedsuikergehalte te verlaag en selfs om simptome van bloedsuikergebrek in normale diere te veroorsaak, maar hierdie vroeë verbindings was beskadigend vir die lewer. Dit blyk egter dat die jonger sulfonamiedderivaat, N-sulfaniliel-N^1-n-butielurea, of karbutamied, wel in staat is om die bloedsuiker te verminder terwyl

No extravagant claims are made for carbutamide. Two years of trials in Germany have led to certain tentative conclusions. First, in the doses recommended, the compound is apparently almost non-toxic; one case of jaundice has occurred during its employment, not necessarily because of it; some reduction of white-cell count has been observed, but not agranulocytosis; drug rashes and drug fever have been reported; severe hypoglycaemia has not been seen unless the patient was also taking insulin at the same time.

Secondly, it seems as if carbutamide will prove of little or no value in the severe or brittle diabetes of the 'growth' type. This is a pity, because we really do need something which might act as an adjuvant to insulin in such cases, allowing easier and safer stabilization on a lesser dose. This problem has still to be investigated further—for instance, no reports have yet been seen on the use of carbutamide in the very severe diabetes of chronic pancreatitis.

Carbutamide is evidently able very significantly to reduce the blood sugar in the milder 'maturity' type of diabetic, especially if the condition is of short duration. It may well be able to control such patients who are on low carbohydrate diets and taking small doses of insulin. Unfortunately these are just the patients who need oral treatment the least—they are usually obese and a weight-reducing diet is their primary necessity. Indeed it would be a great pity and a disservice if carbutamide were to be used as an easy short-cut to diabetic 'control' in such patients, who were then to be allowed to take a free diet and to remain fat.

The exact mode of action of carbutamide is not known. At first it was thought to prevent formation of the blood-sugar-raising factor, glucagon, by damaging the alpha cells of the pancreas. It is more likely, however, that its action is peripheral—it seems to reduce the rate of destruction of insulin in the tissues. Consequently it increases the effectiveness of any insulin in the organism, whether endogenous or injected. This might explain why only those patients who have some circulating insulin of their own respond to carbutamide (i.e. the older 'mild type of diabetic'). The actual blood-sugar lowering is then due to the action of the 'protected' insulin, and not to the drug itself.

Because of our being as yet uncertain of the best use of carbutamide, many trials are still taking place in several countries, including South Africa. Until more is known from these trials it is strongly recommended that the drug should not be employed outside of hospitals in which careful control of the patient is possible.

1. Franke, H. and Fuchs, J. (1955): Dtsch. med. Wschr., **80**, 1449-1460.
2. Achelis, J. and Hardebeck, K., *Ibid.*
3. Bertram, 0. Bendfeldt, E. and Otto, H., *Ibid.*

dit terselfdertyd geen akute vergiftigende hoedanighede besit nie.

Daar word geen buitensporige aansprake vir karbutamied gemaak nie. Twee jaar van proefnemings in Duitsland het tot sekere tentatiewe gevolgtrekkings gelei. Eerstens is dié verbinding blykbaar so-te-sê onskadelik in die voorgeskrewe dosisse: een geval van geelsug het gedurende die gebruik daarvan voorgekom maar was nie noodwendig te wyte daaraan nie; daar was 'n sekere vermindering van die witseltelling, maar geen agranulositose nie; medisyne-uitslag en -koors is gerapporteer; tensy die pasiënt terselfdertyd ook insulien gebruik het, was daar geen akute bloedsuikergebrek nie.

Tweedens lyk dit of karbutamied van geen of baie min waarde sal wees by die hewige of ‚bros' suikersiekte van die ‚groei'-soort. Dit is jammer, want ons het waarlik iets nodig wat as 'n hulpmiddel vir insulien in sulke gevalle kan dien om op 'n klein dosis 'n makliker en veiliger ewewig te behou. Hierdie vraagstuk moet verder bestudeer word—daar is byvoorbeeld nog geen verslae oor die gebruik van karbutamied by die baie hewige suikersiekte van slepende alvleesklierontsteking nie.

Dit blyk dat karbutamied in staat is om die bloedsuiker baie aansienlik te verminder by die ligter ‚volwasse' soort suikersiekte, veral as die siekte nog nie lank bestaan het nie. Heel moontlik kan dit goeie beheer verskaf aan dié pasiënte wat koolhidraat-arm diëte hou en klein dosisse insulien gebruik. Ongelukkig is dit juis hierdie pasiënte wat mondelikse behandeling die minste nodig het—hulle is gewoonlik vet, en vir hulle is 'n verslankingsdieet die eerste vereiste. Dit sou jammer wees, en eintlik 'n ondiens, as karbutamied as 'n maklike kortpaadjie tot suikersiekte-‚beheer' by sulke gevalle gebruik word—die pasiënte sou dan 'n vry dieet hou en vet bly.

Dit is nie presies bekend hoe karbutamied te werk gaan nie. Eers is dit gemeen dat dit die vorming van glukagon, die bloedsuiker-verhogende faktor, verhinder deur die alfa-selle van die alvleesklier te beskadig. Dit is egter meer waarskynlik dat sy werking periferaal is—dit vertraag blykbaar die vernietiging van insulien in die weefsels. Gevolglik vermeerder dit die werksaamheid van enige insulien in die organisme, hetsy endogeen of ingespuit. Moontlik is dit die rede waarom slegs dié pasiënte wat 'n sekere hoeveelheid van hul eie insulien in die bloedsomloop het reageer op karbutamied (d.w.s. die ouer, ‚ligte soort' suikersiekte). Die eintlike vermindering van die bloedsuiker is dus die gevolg van die ‚beskermde' insulien, en nie van die middel self nie.

Omdat ons nog nie seker is oor die doeltreffendste gebruik van karbutamied nie, word baie proefnemings nog steeds in verskillende lande en ook in Suid-Afrika gedoen. Totdat ons meer kennis ingewin het uit hierdie proefnemings, word dit sterk aanbeveel dat die middel nie buite hospitale—waar die pasiënt noukeurig beheer kan word—gebruik moet word nie.

1. Franke, H. en Fuchs, J. (1955): Dtsch. med. Wschr., **80**, 1449-1460.
2. Achelis, J. en Hardebeck, K., *Ibid.*
3. Bertram, F. Bendfeldt, E. en Otto, H., *Ibid.*

STATUS THYMICO-LYMPHATICUS*

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The first description of death caused by an enlargement of the thymus gland was recorded by Felix Platter,[1] Professor of Medicine at Basle, who died in 1614. Ever since this time a controversy has been going on between whether lymphatism (usually diagnosed by an enlargement of the thymus) could ever be responsible for death from minor causes, e.g. after the administration of an anaesthetic or the performance of a minor surgical operation.

In England the argument was more or less settled after the appearance of an article by Greenwood and Woods in 1927,[2] and the report of the Status Lymphaticus Investigation Committee in 1931.[3] The corpse of lymphatism was successfully buried, but since Selye[4] started his theory of the general adaptation syndrome, and the use of cortisone and allied steroids began in clinical medicine, the thymus has assumed a new importance, and many efforts have been made in the medical press to revive the corpse and give it a new lease of life. For these reasons, and also owing to the fact that in our own country inquest magistrates still accept lymphatism as a cause of death following on anaesthesia, I thought it advisable to review the recent literature on the subject, mention some of my own experimental work, and see if I could get any nearer to the truth in the matter.

Definition. For those who believe that this condition exists the description of Marine[5] is the best: 'Status lymphaticus may be defined as a constitutional defect, usually congenital (though it may be acquired), dependent on an inadequacy of some function of the suprarenals, sex glands and autonomic nervous system, and associated with lowered resistence or increased susceptibility to a great variety of non-specific physical and chemical agents. Anatomically it is characterized by delayed involution or hyperplasia of the thymus, hypertrophy and hyperplasia of the lymph glands and lymphoid tissue of the various organs, under-development of the chromaffin, gonadal (suprarenal cortex, interstitial cells of testes and ovaries) and cardio-vascular systems and certain peculiarities of external configuration.'

Incidence

The figures for the incidence of status thymico-lymphaticus quoted below were obtained from a questionnaire I sent to all specialist anaesthetists, pathologists, and public hospitals in South Africa. The response from the anaesthetists was very poor; only about 10% replied. In order to get comparative figures questionnaires were also sent to anaesthetists attached to some of the leading medical schools in England, Europe and America. In all 500 questionnaires were sent out and 210 answers were received.

I would not attach much importance to the comparison of the total overseas death rate with our own, in the first place because these are figures from leading medical schools where one would expect the standard of anaesthesia to be very high; whereas the South African figures include the hospitals which are not attached to medical schools. Secondly some doubt existed in the minds of many anaesthetists about what was actually meant by the question, 'Total number of deaths associated with anaesthesia during the last 5 years'. What I wanted was a record of all cases like those referred to the district surgeon under the Inquest Act, but most overseas anaesthetists only gave a return of cases where they thought the anaesthetic alone was responsible. The important point I wish to make is that it appears that the pathologists attached to the leading medical schools in England, Europe and America no longer make the diagnosis of status thymico-lymphaticus as a cause of death following the administration of an anaesthetic.

TABLE. I. ANAESTHETIC DEATHS 1950-1954 (QUESTIONAIRE RETURNS).

Country	*No. of Operations*	*Total Deaths*	*Deaths per 1000 cases*	*Deaths from Lymphatism*
U.S.A. ..	162,700	59	0·30	0
England and Europe ..	225,000	103	0·45	0
South Africa	518,900	445	0·86	19

Deaths from lymphatism in South Africa—0·037 per 1000 cases (3·7 per 100,000).

Physiology

There is still no evidence that the thymus produces an internal secretion; its main function seems to be the production of lymphocytes.

The thymus reaches its maximum size at puberty (11 to 15 years), and then undergoes an 'age involution', until at the age of 65 it is about one quarter the size it reached at puberty. After puberty there also occurs a rapid reduction of the bulk of parenchyma in the organ; while at the same time the interstitial connective tissue usually assumes the character of adipose tissue and forms a progressively greater part of the organ.[6]

The thymus also undergoes an 'acute or accidental involution' after exposure to various forms of stress. This involution is controlled by the adrenal glands. Dougherty[7] and his co-workers have apparently proved that the size of the lymphoid tissue (including the thymus) is dependent on the ability of the adrenal cortex to induce dissolution of lymphocytes. They have demonstrated an absolute lymphopenia in the circulating blood after the administration of whole adrenocortical extract and, as a result, a reduction in the size of lymphoid tissue.

The thymus is decreased in size in marasmus, wasting diseases, starvation and inanition. Hyperplasia of the thymus is associated with castration, Graves' disease, Addison's disease, myasthenia gravis, lymphatic leukemia, acromegaly, rickets (rarely), congenital

* A paper presented at the South African Medical Congress, Pretoria, October 1955.

hypoplasia of the adrenals, congenital abnormalities like hare-lip and cleft palate, anencephaly, and so-called thymic death.

Recently it was reported that 1·5 g. of flavonoids had been extracted from 15 kg. of calf thymus. These extracts are supposed to delay the onset of 'heat', and also to diminish fertility.[8]

Diagnosis

It is very difficult to diagnose a condition which probably does not exist. If one believes that lymphatism is always accompanied by adrenocortical insufficiency then chemical examination of steroid levels in the blood (17-OH-corticosteroids) and urine (17-keto-steroids) should be helpful in suspected cases. The Thorn test might also be useful. In infants who suffer from pressure symptoms cyanosis, hoarseness and stridor may be present. Kemp[9] believes that border-line cases are often found in pale well-nourished children with a placid disposition. He also mentions 3 signs which he found of value in recognizing these poor-risk cases before anaesthesia, as follows: (1) *Sargent's white-line sign*—a delay in reddening when the skin of the abdomen or chest is lightly scratched with a toothpick or match, (2) *Orroya's sign*—an appreciable delay in the contraction of the pupil which should immediately occur when a light is suddenly flashed in a child's eye, and (3) *Schridde's sign*—a prominence of the lymphoid follicles on the pharyngeal wall between the tonsils. I have never been able to elicit these signs on examining children before tonsillectomy.

Radiological Diagnosis. According to most radiologists the diagnosis of enlargement of the thymus is very difficult because the thymus can easily be confused with other shadows in the mediastinum. The pictures with the least distorted view of the mediastinum are the postero-anterior roentgenograms taken in the upright position at the end of inspiration. A lateral view should also be taken.[10] To my mind the only two indications for radiological examination of the thymus before operation are (1) where the infant shows signs of pressure symptoms, when one might discover an obscure tumour in the mediastinum, and (2) where the parents suffer from a thymus 'phobia'.

Post-Mortem Findings

The autopsy reports differ according to the beliefs of the individual pathologist who conducts the post-mortem. The conditions reported include a hypertrophy of the thymus and general hyperplasia of the lymphatic system, atresia of the aorta and endocardial signs of degeneration.[2] Hypoplasia of the adrenals is a common finding.

It must be pointed out that the normal thymus, even in children, is much larger than was previously supposed, and one should not diagnose this condition on the size of the thymus alone. It may be useful to quote the views of some prominent pathologists on this subject. Boyd:[11] 'Since most subjects who come to autopsy have been ill for more than 3 days the pathologist's eye become adjusted to the involuted thymuses, so that the prominent thymus of the healthy, well-nourished subject appears enlarged to him. In other words, the anatomical picture called status thymico-lymphaticus is the normal state of the thymus and lymphoid tissue of the healthy person. The inconspicuous thymus and lymphoid tissue commonly called normal is the involuted thymus of the poorly nourished or diseased person.' Greenwood and Woods:[2] 'The present use in certification and in evidence in coroner's courts of the phrases status lymphaticus and status thymico-lymphaticus is, we suggest, a good example of the growth of medical mythology. A nucleus of truth is buried beneath a pile of intellectual rubbish, conjecture, bad observations, and generalization. This heap of rubbish is described in the current scientific jargon and treated as an orthodox shrine.' Young and Turnbull[3] reporting on the Status Lymphaticus Investigation Committee in 1931: 'In the opinion of the Committee the facts elicited in the present inquiry are in harmony with those of Hammar (1926 and 1929) and Greenwood and Woods (1927) in affording no evidence that so-called "status lymphaticus" has any existence as a pathological entity.'

Against these opinions Symmers[12] of the Bellevue Hospital, New York, reported 249 cases of lymphatism in 4,000 autopsies. In a carefully recorded series of over 500 autopsies in children dying suddenly Carr[13] also reports 49 deaths associated with pathological changes in the thymus and lymphatic systems.

AUTHOR'S EXPERIMENTAL WORK: (1) ANIMAL EXPERIMENTS

The object of these experiments was to determine (*a*) whether the size of the thymus has any influence on the induction time and sleeping time in rats, (*b*) the role of the thymus in 'stress', and (*c*) whether any relationship could be established between the size of the thymus and the size of the adrenals in normal and orchidectomized rats.

Method

Male albino rats (wistar strain) from 6 weeks to 3 months old were anaesthetized with open ether and the testes *or* adrenal glands removed. These rats, with an equal number of controls, were then kept under observation from 3-6 weeks under identical conditions, and fed on the same standard rat diet-'comproids' and milk. The adrenalectomized animals were also given normal saline in addition to tap water. All the animals for adrenalectomy were given 1 mg. of cortisone 2 days before and 3 days after operation. A certain number of adrenalectomized or orchidectomized rats were also given 1-3 mg. cortisone daily by intramuscular injection, until the time of autopsy, usually for not longer than 3 weeks.

After an interval of 3-6 weeks the operated animals together with controls were placed in a large tin, 6 at a time, with a glass top, and anaesthetized with 2 litres of oxygen blown through a glass bottle containing either 100 c.c. of ether or 50 c.c. of chloroform, and the induction time, and sleeping time, for each rat determined by means of a stop-watch.

Immediately on recovery from the anaesthetic the animals were killed instantly and weighed, and their thymus and adrenal glands dissected out and weighed.

Under open ether anaesthesia about half the experimental animals with controls were exposed to stress by crushing of all four limbs and severe pulling of the entire gut, stomach and liver. The whole gut was then left exposed, and the animal kept under observation until he showed signs of waking up. Immediately on recovery from the anaesthetic the animals were killed instantly, weighed, and their thymus and adrenal glands dissected out and weighed.

Over 300 rats were sacrificed in these experiments.

Findings

(*a*) In the 180 rats anaesthetized with ether or chloroform there were no deaths, irrespective of the size of the thymus. The adrenalectomized animal can apparently stand even chloroform induction well without the aid of cortisone or atropine. The largest thymuses were found in those animals that had been adrenalectomized or orchidectomized 4 weeks before the commencement of the experiments. The smallest thymuses were found in those animals that had received cortisone for 3 weeks after operation. A considerable diminution in the size of the adrenal glands was also noticed after large doses of cortisone (2-3 mg. daily). *No relationship could be established between the weight of the thymus gland and the induction time and sleeping time in rats.* See Table II.

TABLE II. RECORD OF 4 OF THE EXPERIMENTS ONLY

Expt. No.	*Anaesthetic used*	*Weight Rat (g.)*	*Weight Thymus (mg.)*	*Induction Time (minutes and seconds)*	*Sleeping Time (minutes and seconds)*
12	Ether	170	153	1,00	4,20
		159	165	1,35	2,40
		180	228	0,45	3,55
		174	153	1,15	2,45
		211	268	2,30	1,05
		159	211	1,45	3,45
		215	433	1,30	3,15
		186	323	2,00	3,55
15	Ether	109	135	2,45	1,20
		170	193	3,40	1,50
		90	102	2,05	2,05
		134	219	2,30	2,15
		157	189	2,30	1,45
		143	400	2,15	1,45
23	Chloroform	224	231	1,46	1,14
		269	367	1,45	1,25
		206	200	1,35	0,40
		259	397	1,10	0,36
		258	122	2,00	0,32
		259	186	2,00	0,35
		292	120	1,30	1,05
		242	152	1,35	0,55
24	Chloroform	230	78	2,50	0,30
		220	124	3,55	2,15
		228	142	1,30	0,45
		244	126	3,30	0,40
		203	206	3,10	0,35
		256	290	1,45	0,45
		264	414	2,40	0,40
		279	319	3,55	0,35

(*b*) 150 rats were exposed to surgical trauma under ether anaesthesia as already described. There were no deaths that could be attributed to the stress *per se*. Even the adrenalectomized animals without cortisone did not succumb. It would appear that once the adrenalectomized animals have survived for about 3 weeks they can withstand a considerable amount of stress, owing to the development of accessory adrenal cortices in other parts of the body. Three animals died during anaesthesia, but these deaths can all be explained. One rat died from haemorrhage, one from overdose of ether before we commenced the 'stress', and one from an artificially induced pneumothorax, the result of bad surgery.

From these experiments the conclusion is reached that rats suffering from artificially-induced 'lymphatism' do not die suddenly after exposure to various forms of surgical trauma under ether anaesthesia.

(*c*) It has often been stated that an inverse ratio exists between the size of the thymus and the adrenals, in other words, that a large thymus is usually accompanied by hypoplastic adrenal glands.[14]

No such relationship could be established in normal or orchidectomized rats. All our glands were weighed

TABLE III(A)

Orchidectomized Rats		*Control Rats*		*Orchidectomized Rats receiving Cortisone 1–3 mg. daily*	
Weight Thymus (mg.)	*Weight Adrenals (mg.)*	*Weight Thymus (mg.)*	*Weight Adrenals (mg.)*	*Weight Thymus (mg.)*	*Weight Adrenals (mg.)*
336	32	162	36	49	16
428	35	186	36	68	19
347	36	218	35	60	14
435	29	201	35	53	14
244	34	126	34	66	22
286	39	167	30	82	14
378	40	69	29	89	18
224	41	77	24	72	13
312	34	165	25	177	26
340	26	153	31	139	21
217	36	156	31	141	32
299	39	101	39	130	25
254	38	143	25	65	22
255	36	105	28	203	28
347	34	145	39	146	27
234	32	158	29	137	20

TABLE III(B)

Adrenalectomized Rats	*Control Rats*		*Adrenalectomized Rats receiving Cortisone 1-2mg. daily*
Weight Thymus (mg.)	*Weight Thymus (mg.)*	*Weight Adrenals (mg).*	*Weight Thymus (mg.)*
400	218	35	135
336	189	31	193
376	164	30	102
306	163	30	89
318	155	26	90
382	170	25	69
290	157	27	113
260	144	28	110
506	169	31	121
368	218	25	161
341	132	31	82
348	143	28	182
250	159	33	134
393	173	28	158
331	211	34	92
247	128	35	68

on a Mettler analytical balance which gives the correct weight up to 1/10,000 g. Table 3 gives the weights of some of these glands for rats weighing between 150-200 g.

2. AUTHOR'S OBSERVATIONS ON HUMAN TISSUES

The object of this investigation was to determine (*a*) the average size of the thymus gland for each age-group, and (*b*) whether one could establish a relationship between the size of the thymus and adrenal glands by weight, and histological examination.

Method

About 100 adrenal and thymus glands were collected at post-mortems of patients *who died suddenly* from accidental death, injury, suicide or homicide. These glands were then cleaned, weighed, and examined histologically. Wherever possible the weights of the glands undergo autolysis after death so that the final results are not always reliable.

TABLE IV. AVERAGE WEIGHTS OF THYMUS GLAND IN GRAMS ACCORDING TO AGE

Age (years)	*Our average weights*	*Hammar*	*Schridde*
0– 1	20·6	13	13
1– 5	22·8	23	17
6–10	26·5	26	20
11–15	30·8	38	25
16–20	26·5	26	20
21–25	25·8	25	19
26–35	14·3	20	14
36–45	21·7	16	10
46–55	16·6	13	7
56–65	8·6	16	4
66–75	5·8	6	3

bodies and of the spleen were also obtained. Boyd[11] has emphasized the fact that (with the exception of tumours of the thymus, leukemia, and exopthalmic goitre) the weight of the thymus is reduced by any fatal illness, which has lasted longer than 24 hours. Selye[15] also lays stress on the fact that the weight of the adrenal glands is affected by various diseases owing to the general adaptation syndrome elicited by them. For these reasons one should only consider as true weights the weights of organs obtained from patients who did not succumb after a prolonged illness.

Findings

(*a*) The average weight of the thymus gland for each age-group is given in Table IV. These weights are compared with those given by Hammar[16] in 1906 and Schridde[17] in 1923, also in cases of sudden death (accident, homicide or suicide).

(*b*) *No relationship could be established between the weight of the thymus and adrenal glands.* Even with our largest thymuses the weights of the adrenal glands were still within normal limits for the age-group. Soffer[18] talks about the existence of an autonomous 'see-saw' arrangement between these two glands. In our own series we could not establish such a relationship.

All these glands were sectioned, stained with haemotoxylin and eosin and examined histologically. In those patients who presented thymus glands above the average weights the adrenal glands were also stained with Sudan IV stain and examined for lipids. These

Histological Findings

(*a*) *Thymus Glands.* Apart from increased adipose tissue in the larger glands we could find nothing abnormal in these sections.

(*b*) *Adrenal Glands.* A few adrenal glands taken from subjects with large thymuses (over 50 g.) showed a generalized diminution of lipids in all three zones of the adrenal cortex. Similar changes were however also found in control adrenal glands where the thymus glands were of average size. Most of the glands were normal in appearance in spite of increase in the size of the thymus glands.

From the histological examination of our own sections we could not establish a relationship between the thymus and the adrenal cortex. Our largest thymus glands were not always accompanied by hypoplastic adrenals showing histological changes.

THEORIES ON THE CAUSE OF DEATH

Various theories have been advanced by pathologists and pediatricians to explain these deaths. No single theory will explain all deaths. If children in the category of lymphatism do not all react in the same way to various forms of stress, this might be a reason why so many theories have been postulated. Some of the more important theories are discussed below:

Mechanical Obstruction. Anatomically it is possible for the thymus to cause pressure not only on the trachea, but also on the great vessels and the recurrent laryngeal nerves. Theoretically this is particularly likely to happen during the first year of life; afterwards, although the thymus is increasing in size, the chest is growing at a much greater rate, so that obstruction by the thymus is very unlikely.[11] I doubt if direct pressure of the thymus could ever cause death, even during anaesthesia. According to experiments conducted by Tammassia[19] the thymus must weigh at least 180 g. before it can completely compress the trachea. This is much larger than the heaviest thymuses ever reported.

Anaphylaxis. Symmers[12] believes that death is due to anaphylaxis, sensitization and shock as the result of the release of nucleoproteins formed during the destruction of innumerable germinal follicles in the thymus gland. This theory of auto-intoxication is no longer accepted.

Rupture of a Hypoplastic Cerebral Artery. Of the anatomical abnormalities associated with status thymico-lymphaticus a general hypoplasia of the arteries has often been mentioned. These changes are supposed to be common in the aorta and cerebral vessels. Cerebral haemorrhage might well be a cause of sudden death in young people; but often there is no associated enlargement of the thymus gland.[3] These deaths might just as well be taken as examples of congenital aneurysms of the cerebral arteries.

Adrenal Insufficiency. Wiesel[20] was the first to postulate the theory of adrneal insufficiency. He suggested that a sudden fall of blood pressure due to hypoplasia of the chromaffin tissue of the adrenal glands resulted in insufficient production of adrenaline and that this

deficiency led to a sudden increase in vagal tone, with cardiac dilatation.

Campbell[21] believes that death is due to hypoplasia of the medulla resulting in an insufficiency of adrenaline in cases of 'stress' with the result that there is not sufficient dilatation of the coronary arteries to supply more blood to the heart muscle.

Aldrich[22] and others believe that these patients suffer from a *vagotonia*, as a result of the reduced adrenal activity. These vagotonic symptoms might take the form of increased stimulation of the vagus or parasympathetic, or a reduction in the activity of its normal antagonist, the sympathetic. In my opinion patients can die from these causes without showing any evidence of lymphatism. We also know that the size of the thymus is not affected by the secretions of the adrenal medulla, and that the medulla is not essential to life.

Perhaps the most reasonable hypothesis is that advanced by Kemp,[23] of Vancouver, who believes that status lymphaticus is the result of the normal postnatal absorption of the foetal adrenal cortex in infants suffering from hypothyroidism. In this connection it is of interest that in 1929 Williamson and Pearce[24] apparently proved that the thymus was not a distinct organ, but part of the thyroid gland, and that it acted as a reservoir for the secretory products of thyroid activity. I shall discuss this theory of adrenocortical insufficiency below.

DISCUSSION

Whether or no status thymico-lymphaticus exists as a pathological entity is a matter for the pathologists to decide. One is, however, struck by the fact that in the recent literature on the causes of sudden and unexplained deaths in infants and children, not associated with anaesthesia, status thymico-lymphaticus is no longer mentioned as a cause. Most of these deaths are eventually traced down to the heart and lungs after careful histological examination of these tissues.[25] What concerns us as anaesthetists is whether this condition can be responsible for death during anaesthesia. In my opinion, even if the condition exists this should never happen under a skilful anaesthetist. My own experience and reading suggest that other less nebulous causes can usually be found to explain these fatalities, if adequate investigation is made. Quite a number of anaesthetic complications, apart from the size of the thymus, can cause death with more or less similar post-mortem findings, or with none. To mention only a few, one thinks of laryngospasm, bronchospasm, chronic hypoxia, reflex vagal inhibition, ventricular fibrillation, and simple overdose of anaesthetic in a susceptible individual.

In the older records chloroform was the chief agent blamed for these deaths. We now know that chloroform can cause sudden ventricular fibrillation in susceptible patients, irrespective of the size of the thymus gland. But no particular anaesthetic seems to be free from blame.

It is said that these deaths are particularly likely to occur in children after operations for tonsillectomy or adenoidectomy. On going through the records of thymic deaths during throat operations one is struck by the suddenness of death in most cases. I venture to suggest that these deaths could with equal sincerity have been diagnosed as being due to *reflex vagal inhibition*. We know that the threshold for peripheral vagal stimulation is much lower in the neck than elsewhere. It is particularly likely to happen under light anaesthesia, with inadequate premedication. In some of these cases where the diagnosis of status thymico-lymphaticus has been made the size of the thymus is well within normal range, and in most of them the weight of the thymus is not given or was not taken.[3] It is significant that in Pretoria during the last 5 years at least 10,000 children were operated on for tonsils or adenoids with no deaths from status thymico-lymphaticus. In Johannesburg, where no death from this cause was reported, the figure must be considerably higher.

The thymus is supposed to be hypertrophied or persistent in toxic goitre, and in myasthenia gravis, to mention only two conditions frequently requiring surgery. I have not found these cases more difficult to anaesthetize, or worse anaesthetic risks, than normal cases. We also have no record of eunuchs dying suddenly after the administration of an anaesthetic or from trivial or emotional causes.

The only reasonable theory of death during operations on patients suffering from lymphatism seems to be that of adrenocortical insufficiency, and this requires further examination. Most 'thymic deaths' reported were in children who showed no signs of adrenal disease before operation, and in most cases death occurred very suddenly, before any resuscitative measures could be instituted. If these deaths were due to adrenal exhaustion one would expect at least a delayed interval, with signs of collapse, before death finally set in. Many of these deaths occurred during induction, or during minor operations, where the patient was not exposed to much 'stress'. We know that there is an increased secretion of corticoids during periods of stress; and even if there were a certain amount of hypoplasia of the cortex beforehand one would expect the remaining cortex to secrete enough corticoids to meet the situation during minor operations.[26] We know too, that general anaesthesia in itself is not the type of stress requiring an increased secretion of steroids.[27] It is also accepted that a normal adrenal gland never suffers from exhaustion, and keeps on secreting until just before death.[28] If there was marked atrophy of the adrenals beforehand then one would expect symptoms indicative of chronic adrenocortical insufficiency before operation, e.g. hypotension and pigmentation.

In children frank Addision's disease is rare, and one might therefore argue that a latent adrenocortical insufficiency without symptoms would also be rare. In infants one would expect an enlargement of the thymus in congenital adrenal hypoplasia as a result of failure of development of the adult adrenal cortex after neonatal involution of the foetal cortex. The cases reported suffering from this condition have, however, all showed symptoms like diarrhoea, vomiting, listlessness or pigmentation which would have enabled the pediatrician to make his diagnosis, and which would have put the anaesthetist on his guard before the commencement of the anaesthetic.

In infants and children suffering from Waterhouse-Freidrichsen syndrome as a result of acute infections,

one would expect the thymus to be enlarged; but these cases would be bad risks for any surgical operation.

Patients who died from status thymico-lymphaticus during anaesthesia can be compared with those cases who died post-operatively from acute adrenocortical insufficiency. Recently quite a few cases were reported in the literature of patients who had succumbed from operations after having been on cortisone for a long period, some time before the operation. None of these cases showed signs of Addison's disease to warn the surgeon, and none received supportive therapy (cortisone or ACTH) pre-operatively to help them over the period of stress during the operation.[29,30] At post-mortem all these cases showed atrophy of the adrenal glands with marked loss of weight. Microscopically there was an absence of vacuoles on sections stained with haemotoxylin and eosin. Sections stained with Sudan IV showed diminished quantities of lipid throughout all three zones of the cortex. The medulla was normal.

In our own sections, even with the thymuses much larger than average, we seldom found such changes in the adrenal glands (see above). In a large number of reported cases of so-called 'thymic death' during anaesthesia the adrenals were normal on macroscopic and microscopic appearance. Other writers have reported a hypoplasia of the adrenals, but in the majority of cases there was no mention of the adrenal glands at all.[3–31]

Another notable feature in these deaths after previous cortisone therapy is that *death never occurred on the table*. The patients may have collapsed on the table, but there was always an interval of a couple of hours after the onset of symptoms of collapse before the time of death. Death usually occurred within 24 hours after operation in spite of blood transfusions, intravenous cortisone etc. In the 'thymic deaths', death usually occurred on the table; collapse came on very suddenly, and there was no time for resuscitation. This is not what one would expect from patients suffering from a latent adrenocortical insufficiency, as even with a hypoplasia of the cortex one would expect some increased secretion of steroids during stress to keep the patient going until adrenal exhaustion finally sets in. In other words one would have expected these patients to behave in the same way as those patients who had been on cortisone therapy for a long time; but this was not the case.

CONCLUSION

From my own observations on animals, and on human tissues, and from the arguments advanced in the discussion, I would like to put forward the hypothesis that those deaths described in the literature as thymic deaths could not have been due to an acute adrenocortical insufficiency. There is not sufficient evidence to put the blame on the adrenal cortex. Some other cause must be found and I have mentioned a few likely causes in the discussion.

Until equivocal evidence supports the concept of status thymico-lymphaticus the use of this term as a cause of death during anaesthesia should be discouraged, even if the ultimate diagnosis should prove to be 'death due to cause unknown'. Such a line of action is likely to stimulate thorough investigation into the mysteries which still surround some deaths under anaesthesia.

To my mind the only way we shall ever solve the riddle of anaesthetic deaths is for the pathologist, anaesthetist and surgeon to meet together, before the autopsy, in a frank and open discussion of all the facts of the case. This would materially assist the pathologist in making his diagnosis. The procedure would be very much simplified and suspicion removed if the Inquest Act were changed so that the anaesthetist would not always be faced with a public inquest every time he had a death on the table, whether or no the anaesthetic played a part in such a death.

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BICORNUATE UTERUS

A REPORT OF FIVE CASES IN LATE PREGNANCY

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It is by no means impossible for a congenitally abnormal uterus to harbour a pregnancy and to sustain it to full term. Indeed this can be seen from the many reports to be found in the literature. Fenton and Singh[1] reported on various types of uterine and vaginal anomalies among pregnant women at the Sloane Hospital for Women, New York, for the 25-year period 1925-49 and found an incidence of 0·15%, or 1 anomaly in every 633 deliveries. More recently, Philpott and Ross[2] reported that among 39,190 patients admitted to the Royal Victoria Montreal Maternity Hospital between 1942 and 1953, 41 were found to have some congenital uterine abnormality—an incidence of 0·1% or 1 uterine anomaly in 960 deliveries.

It is only in the marked cases of arrested development of the uterus, in which the uterus remains rudimentary or, in extreme cases, is actually absent, that pregnancy is impossible. In other types of uterine abnormality, caused by irregularities in the fusion of the two Mullerian ducts, a very large variety of malformations is possible With all these, as Stallworthy[3] has pointed out, the abortion rate is very high.

The bicornuate uterus represents one of the lesser malformations. In this condition the cervix is normally formed, but the body of the uterus above has failed to fuse correctly into one single hollow organ, and is found, to a greater or lesser extent, as two distinct horns meeting and fusing above the cervix. The term 'bicornuate uterus' is used rather loosely, but it should only be used to denote the *uterus arcuatus* (Fig. 1) and the *uterus bicornis unicollis* (Fig. 2), which are the two

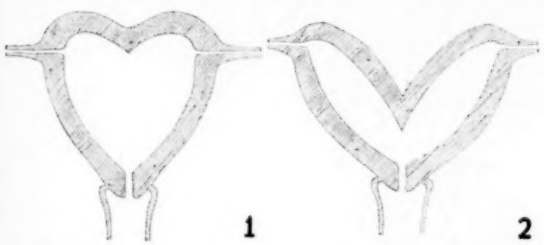

Fig. 1. Uterus Arcuatus. *Fig.* 2. Uterus Bicornis Unicollis.

extreme variants of the same condition. The uterus arcuatus is the simplest variety of bicornuate uterus and is the commonest variety met with. In its slightest degrees the malformation is of no moment and there is no doubt but that very many of these cases are never diagnosed. When the malformation is more marked, however, complications can, and frequently do, arise in late pregnancy, for the condition tends to produce an oblique lie and, it is said, favours retention of the placenta in the third stage of labour.

Five cases are reported here, all with definite uterus arcuatus. Though this is a very small number of cases, they nevertheless serve to illustrate certain features which should aid in the diagnosis of the uterine abnormality during pregnancy. These 5 patients were all delivered within a 3-months period at the Queen Victoria Hospital, Johannesburg. This may be due to a chance 'run' of these cases. On the other hand it may indicate that the condition is not so uncommon as was formerly supposed. As mentioned above, many of these cases give rise to no complications, particularly if the abnormality is minor in degree, and so may easily be missed.

Of the 5 cases 2 were primiparae and 3 multiparae. The primiparae both had vertex presentations when seen. In both, the vertex was centrally situated over the pelvic brim, but the upper pole of the foetus was not in the mid-line, but was found off to one side rather under a costal margin. In spite of attempts at correction, the position persisted. On the opposite side of the abdomen a soft globular swelling could be felt as part of the uterus. In one case this swelling was just above the level of the umbilicus and contained foetal limbs. These limbs could be felt with the greatest ease, as in an abdominal pregnancy. A test with a small dose of pitocin showed that the limbs were encased in myometrium; there was a distinct hardening after the injection.

In my opinion this feature—the upper pole of the foetus persistently being out of the mid-line—is a most important one and should introduce the suspicion of a bicornuate uterus to the examiner's mind. In antenatal examinations the lower portion of the uterus is always carefully palpated to determine the presenting part, but the same care is not usually devoted to the fundus of the uterus—particularly when it is difficult to feel, as when the abdominal wall is tight or in an obese patient.

The other 3 patients were multiparae, and all were found to have a breech presentation. They all gave a similar obstetrical history. Each patient had had one previous full-time pregnancy. In 2 cases the patient had had an oblique lie with her first pregnancy; one was delivered by Caesarean section for shoulder presentation in labour, and the other by a difficult breech extraction. In the 3rd case the patient had had a breech presentation in the later weeks of her first pregnancy and numerous attempts at external version had failed. She was eventually delivered successfully as a breech.

In these 3 cases numerous attempts at external version during their present pregnancy had all failed, and the significant point was that all seemed at first glance to be 'easy' versions, since the abdominal wall was lax and the uterus relaxed, and there appeared to be an adequate amount of liquor present. In all 3 the foetal head was found to be persistently to one side of the mid-line of the abdowaau—a feature stressed above.

In one only, a soft globular swelling was felt to the one side of the 'fundus'.

Thus, the second point of significance is the failure of what originally promises to be an easy external version. The suspicion of a bicornuate uterus should be made stronger by an obstetrical history of an oblique lie or a breech presentation with the previous delivery.

Of these 5 cases of bicornuate uterus, 3 suffered from cardiac disease. One patient had a congenital heart lesion—an inter-auricular septal defect together with pulmonary stenosis. The other 2 patients had rheumatic heart-disease, one being in cardiac failure with active rheumatic carditis at the time of admission. That a congenital anomaly of the heart should exist with a congenital anomaly of the uterus is not surprising, but the fact that the other two patients, in whom no evidence of congenital disease of the heart was found should have cardiac disease is regarded as pure coincidence. The 5 cases gave no evidence of congenital defects of the renal system, which are often reported in association with congenital uterine anomalies.

Three of the 5 patients had unfavourable pelves—one was markedly android and the other two were contracted pelves. As far as I know pelvic deformity has not been reported as a concomitant of bicornuate uterus.

One of the 5 patients was delivered *per vias naturales* as a breech with extended legs. The infant weighed 6 lb. 8 oz. and was alive and well. The uterus was examined under general anaesthesia after the delivery of the placenta and the diagnosis of bicornuate uterus was confirmed. The remaining 4 patients were delivered by Caesarean section for the reasons stated below and the diagnosis of bicornuate uterus was confirmed at operation.

CASE REPORTS

Case 1 (no. 4796) was a primipara aged 29 years, with a history of inability to fall pregnant for the previous 7 years. She was admitted to hospital for investigation of a cardiac condition when she was first seen at the antenatal clinic. She was then already 29 weeks pregnant and the foetus was found to be lying transversely. The cardiac condition was diagnosed as being due to a congenital inter-auricular septal defect together with a pulmonary-valve stenosis (cardiac type 3). Nothing unusual was noted in the shape of the uterus at this stage. She signed herself out of hospital and was not seen again until she had reached the 36th week of her pregnancy.

On readmission her cardiac state was found to be about the same as previously. The foetus was lying as a R.O.L. with the vertex centrally placed over the brim, but not engaged. The upper pole of the foetus was found to be to the right of the mid-line; this feature persisted until the time of delivery. A smooth globular mass was felt to the left of the uterus and first gave the impression of a moderately large ovarian cyst. However, as foetal parts could be felt in it, it became obvious that the mass was a sacculation of the main uterine body. The limbs could be felt exceptionally clearly here, which suggested that the myometrial covering was rather thin. When a small test dose of pitocin was given this area hardened up satisfactorily. X-ray pelvimetry revealed that the patient had a gynaecoid pelvis, the inlet being 112 sq. cm. (average for patients at this hospital 123 sq. cm.) and the outlet 104 sq. cm. (average 103 sq. cm.). The patient remained in hospital until after her delivery.

The expected date of delivery was 17 December 1955. On 23 December the membranes ruptured spontaneously without labour. It was seen that the liquor was meconium-stained and the foetal heart-rate, which had previously been regular and normal in rate, had now become grossly irregular and slow. Caesarean section was immediately proceeded with.

A live but distressed infant weighing 6 lb. 8 oz. was delivered and subsequently did very well. A type-1 posterior placenta praevia was found, together with marked vasa praevia, the membranes having ruptured between two large umbilical vessels. There had been no antepartum haemorrhage. The uterus was found to be a marked uterus arcuatus, and the left horn appeared somewhat thinner than the remainder of the uterus. The patient made an uninterrupted recovery.

Case 2 (no. 544), a primipara aged 25 years, was admitted to hospital in her 34th week of pregnancy. She had fallen and had strained her erector spinae muscles. She also had a mitral stenosis and the physician had classified her on her cardiac reserve as type 2. Abdominal palpation showed the foetus to be in the R.O.A. position, with the vertex centrally over the pelvic brim and the breech to the one side of the mid-line. The fundus of the uterus had a depression to the left side giving on to a rounded globular mass. The provisional diagnosis of arcuate uterus was made. The patient was kept in hospital under observation because of her cardiac state. On three or four occasions she commenced premature labour but each time after sedation the uterus quietened. An X-ray pelvimetry revealed a contracted and most unfavourable pelvis. The inlet was markedly android in shape and its area was only 82 sq. cm. The sacrum was markedly angulated forward in the mid-pelvis.

At 38 weeks she commenced labour. There was a marked overlap of the foetal head on the pelvic brim and an obvious cephalo-pelvic disproportion existed. She was delivered on 11 February 1956, by lower-segment Caesarean section, of a live male infant weighing 5 lb. 7 oz. The uterus was found to be a definite uterus arcuatus.

The patient made an uninterrupted recovery from the operation and signed herself out of hospital on the 12th post-operative day.

Case 3 (no. 5049), a para 2 aged 31 years, was admitted in her 30th week of pregnancy in cardiac failure. Her first pregnancy had been terminated by lower-segment Caesarean section because of a shoulder presentation in labour. This infant had subsequently died at the age of 13 months. The second pregnancy had ended in premature labour at 30 weeks. This infant had weighed 2 lb. 8 oz. and had died on the 7th day after delivery.

She was found to have mitral stenosis and incompetence, together with aortic stenosis and incompetence. In addition she was suffering from active rheumatic carditis, which had precipitated cardiac failure. The foetus was presenting as a breech. Palpation of the fundus was difficult because of obesity. She remained in hospital until after delivery.

Between 34 and 36 weeks several attempts were made at external version and all failed, in spite of the fact that the abdomen was lax and the uterus relaxed, and there was apparently an adequate amount of liquor present. On several occasions the foetal lie was oblique, but later it became stabilized with the breech presenting centrally over the pelvic brim and the head lying to the right of the mid-line towards the right costal margin. An X-ray pelvimetry revealed a pelvis of apparently adequate dimensions (inlet 121 sq. cm., outlet 104 sq. cm.), but the shape was unfavourable, there being an android inlet and a 6-piece sacrum.

On 6 February 1956, at 38 weeks, she commenced labour. In view of her poor obstetrical history, the previous Caesarean section, and the unfavourable pelvis, it was decided to deliver by Caesarean section. Her cardiac state had improved to the optimum that could be expected. At Caesarean section a marked uterus arcuatus was found. The infant was alive and well, and it weighed 5lb. 5oz. The mother took the operation remarkably well and she made an uninterrupted recovery. She was discharged on the 20th post-operative day.

Case 4 (no. 795), a para 1 aged 25 years, was admitted in the 37th week of her pregnancy with a mild pre-eclamptic toxaemia. Her obstetrical history revealed that she had a pre-eclamptic toxaemia with her last pregnancy, for which labour was eventually induced. Her infant was delivered successfully as a breech, and she volunteered the information that numerous attempts had been made unsuccessfully during that pregnancy to perform external version.

On this occasion the foetus was found to be lying as a L.S.A. with the head to the right of the mid-line, tending to drift under the right costal margin. Attempts had previously been made at the antenatal clinic to perform external version, but these had

failed. Once the pre-eclampsia had subsided, further attempts were made in the ward, but they also failed, in spite of the fact that the abdominal wall was lax and the uterus relaxed, and an adequate amount of liquor was present. The foetal head persisted in lying to the right of the mid-line. On the left of the fundus a soft globular mass was felt. The diagnosis of bicornuate uterus was made. X-ray pelvimetry revealed an adequate pelvis with a gynaecoid inlet 118 sq. cm. in area, and an outlet of 114 sq. cm.

Labour commenced at 39 weeks, on 7 March 1956, and the patient had a normal breech delivery. Labour was rapid, lasting only 2 hours 9 minutes. The blood loss amounted to 8 oz. and the third stage lasted 12 minutes. The infant weighed 6 lb. 8 oz. and was alive and well. An examination of the uterus under general anaesthesia was made after the third stage and the diagnosis of uterus arcuatus was confirmed.

Case 5 (no. 1291), a para 1 aged 21 years, was admitted on 26 March 1956, 7 days after her expected date of delivery, in labour. Her first infant had been delivered by means of a difficult breech extraction after a labour which lasted 64 hours. At this delivery she also suffered a post-partum haemorrhage of 40 oz. and she received a blood transfusion. With this first pregnancy the foetus had been found lying obliquely and transversely at the 34th week and the 36th week, but when she commenced labour it was lying as a breech. This first infant had weighed 5 lb. 10 oz. at birth and was now alive and well.

On this occasion abdominal palpation showed the foetus to be in the L.S.A. position. The presenting breech was centrally placed over the pelvic brim and the foetal head was found off the mid-line towards the right hypochondrium. Attempts to move the head to the mid-line always resulted in its coming back towards the right hypochondrium. No globular mass could be felt to the left of the fundus: nevertheless, a provisional diagnosis of bicornuate uterus was made.

The membranes had ruptured prematurely, but the uterine action was that of normal labour. X-ray pelvimetry revealed a contracted pelvis with a gynaecoid inlet. The area of the inlet was 105 sq. cm. and of the outlet 97 sq. cm. As this foetus was judged to be considerably larger than her last infant disproportion was expected. A vaginal examination showed the cervix to be almost fully taken up and the breech had not yet engaged. On this it was decided to proceed with Caesarean section. At operation a definite and well-marked uterus arcuatus was found. The infant weighed 7 lb. 1 oz. and was alive and well.

CONCLUSIONS

1. Bicornuate uterus, particularly the minor types, may be more common in association with pregnancy than has previously been thought to be the case.

2. During antenatal examinations more attention should be paid to the upper pole of the foetus than is generally done. Where the upper pole of the foetus is found persistently to the one side of the mid-line, the possibility of bicornuate uterus should be kept in mind. It should be noted that the lower or presenting pole of the foetus may be centrally placed over the pelvic brim.

3. Where external version for breech presentation has failed in an apparently easy case, uterine abnormality should be kept in mind as a possible cause for the failure.

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INTERLOCKED TWINS: A CASE REPORT AND BRIEF REVIEW OF THE LITERATURE

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The occurrence of locked twins is a rare event. The incidence is variously given as 1 in 1,000 twin deliveries or 1 in 90,000 of all deliveries.[1] The following case occurred in the Maternity Department of the King Edward VIII Hospital, Durban, on 3 December 1955.

CASE REPORT

A 19-year-old Bantu girl, M.P., gravida 2, para 1, reached the labour ward at 2 p.m. on 3 December. She had had no antenatal care and, although dirty and untidy, looked quite healthy. Her first pregnancy, in 1953, had resulted in the normal birth of a male infant (weight unknown), who died in infancy. Blood pressure was 110/70 mm. Hg, and no peripheral oedema was present. She appeared to be advanced in the second stage of labour—a labour which had begun 13 hours earlier—and the membranes had ruptured. Her abdomen was mountainous, and plural pregnancy was suspected. It was, however, impossible to verify the diagnosis on account of the strong uterine contractions and consequent difficulty in identifying foetal parts or heart sounds. Within minutes of the unsatisfactory abdominal examination, buttocks were seen to appear at the vulva, and the patient was hastily positioned for a breech delivery. An unassisted breech delivery was then partially accomplished with no difficulty, including delivery of the arms. The incompletely delivered breech was allowed to hang for fully 2 minutes to maintain flexion and encourage descent (Burns-Marshall technique[2]), while a right mediolateral episiotomy was performed under 2% local procaine anaesthesia. A hand was then passed into the vagina with the object of reaching the mouth in order to complete delivery of the head

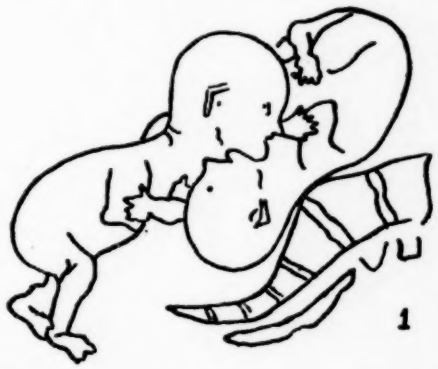

Fig. 1. Shows the positions of the 1st twin, a breech, and the 2nd twin, a vertex. Note, in addition, the prolapsed arm of the 2nd twin. (After Kimball and Rand[3], *American Journal of Obstetrics and Gynecology*.)

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by the Mauriceau-Smellie-Veit method.[3] This internal hand discovered a second head engaged in the pelvis just below ischial spine level and in the hollow of the sacrum. The neck of the undelivered breech was elongated and pushed up anteriorly against the symphysis pubis. The head of the undelivered breech was still above the pelvic brim and situated towards the right iliac fossa.

Under general anaesthesia, the diagnosis of locked twins was confirmed. Not only was the head of the second twin engaged in the pelvis together with the neck of the first, but furthermore the right arm of the second twin was prolapsed. (The presentation was indeed compound, the situation complex!). The cervix was fully effaced. The mid-cavity and pelvic outlet were adequate in size. There was already marked moulding of the cranium of the second twin.

An attempt was made to disimpact the second twin's head, but the locking was too firm, nor could the prolapsed arm be replaced. By this time, the partially delivered foetus was dead and, as no foetal heart sounds of the second twin were heard after careful and systematic listening, it was assumed that it too had died. Both foetal skulls were then perforated in turn; first that of the second twin, which was easily reached after upward traction of the breech of the first twin. With the head in the pelvis perforated and collapsed, leg traction on the first twin in a downward direction brought more of its elongated neck into view, and one was then able to perforate this head posteriorly through the occipital bone without danger of trauma to the maternal soft tissues. Finally, simple traction on the prolapsed arm of the second twin also brought about its delivery.

The third stage of labour was uncomplicated. There were two placentae. Examination of the twins after delivery showed them to be mature, well-developed and comparatively heavy. The first was a female weighing 5 lb. 6 oz., the second a male weighing 5 lb. These weights did not include that of the brain tissue lost after perforation and delivery, which might be conservatively estimated at 10 oz. in each case.

The patient left hospital on the 10th post-partum day.

COMMENT AND DISCUSSION

Twins, during labour, may truly interlock or alternatively only collide in the pelvis, and there are 4 main ways in which this locking or collision may be brought about.

1. Two presenting vertices enter the pelvis side by side and progress is arrested by the second foetal head being driven down between the thorax and head of the first. Cunningham[4] describes such a case. He refers to his case as one of 'jammed twins', and points out that it is less formidable than the next type to be described.

2. The first twin presents by the breech, and the second by the vertex. Here, the aftercoming head of the first twin is arrested at the pelvic inlet by its chin becoming locked with the chin of the second twin. This is true chin-to-chin interlocking of twins, and the case reported in this article is of this type. Kimball and Rand[5] state that this situation of chin-to-chin locking makes up only a very small proportion of the total locked twins reported, so that its occurrence must indeed be extremely rare. Leonhard's table of the disposition *in utero* of the foetuses in twin labours—a table based on an analysis of 1840 twin labours—shows that the combination of a breech followed by a vertex occurs only in 14·3% of all twins.[6] All authors seem agreed that decapitation of the first twin is necessary to undo the locking before delivery of the second twin is possible. It may therefore be fairly asked why this line of treatment was not carried out in the case reported. Greig,[7] in 1946, when faced with this problem had managed to push the vertex of the second twin from ischial-spine level up out of the pelvis, and by so doing, disentangled the locked foetuses. A living 4 lb. 10 oz. breech was then born, followed by a 5 lb. 3 oz. vertex birth. In our own case, however, the babies were heavier and manipulations further handicapped by prolapse of an arm alongside the vertex of the second twin. The decision to perforate and so collapse the second twin's head as the initial step in the treatment, was made because it was felt that decapitation of the first twin would be risky as well as extremely difficult, since its elongated neck lay elevated hard up against the under surface of the subpubic arch, and one feared injuring the urethra or neighbouring maternal soft parts. After perforation of the second head and later perforation of the first twin's head almost an hour had elapsed, yet the mother's condition remained good.

3. This group presupposes two breeches attempting to engage simultaneously. The breeches may both be fully flexed, or prolapse of up to 4 legs may occur.

4. In the final group, the first twin, whether a vertex or a breech, catches on some part of the anatomy of the second twin, which is lying transversely in the uterus.

Aetiology

There appear to be several predisposing factors in the aetiology of locked twins. The actual combination of circumstances initiating the mechanism would appear to be fortuitous.[8] The predisposing factors are small foetuses, an unduly roomy pelvis, oligohydramnios, mono-amniotic twins, and extension of the leading head. Deficiency of liquor amnii, according to Cunningham,[4] is the theory which receives most support. Miles Phillips states that the loss of liquor from both sacs causes locking.[9] Wright[10] dealt with 3 cases of locked twins and has stated that a normal amount of liquor in each foetal sac will probably prevent locking, but that a liquor deficiency in the second foetal sac favours the accident. Lawrence,[11] reviewing 28 cases of locked twins since 1907, found that 23 were in primigravidae and regarded this as a strong predisposing factor. No opinion can be given about any aetiological factor in the case reported, for the liquor had drained away before admission.

Foetal Loss

A high foetal mortality can be expected as a result of this complication. Lawrence[11] showed in his review in 1949 that the leading twin is stillborn in nearly 60% of cases. Lattuada[12] describes a case of locked twins in which the first presented as a breech and the second as a vertex. The vertex became impacted against the chest of the first and, after delivery, a crush deformity of the anterior thoracic cage was noted in the first twin.

Treatment

After timely diagnosis of locked twins, and in order to secure live infants, Caesarean section will offer the greatest chance of success. The treatment, however, may be prejudiced by late diagnosis, by intra-uterine death or by infection, in which case, some form of destructive operation will be preferable (MacLennan[13]). A unique method of simultaneous delivery of chin-to-chin locked twins was described by Kimball and Rand[5] in 1950. While an assistant holds up the undelivered breech by

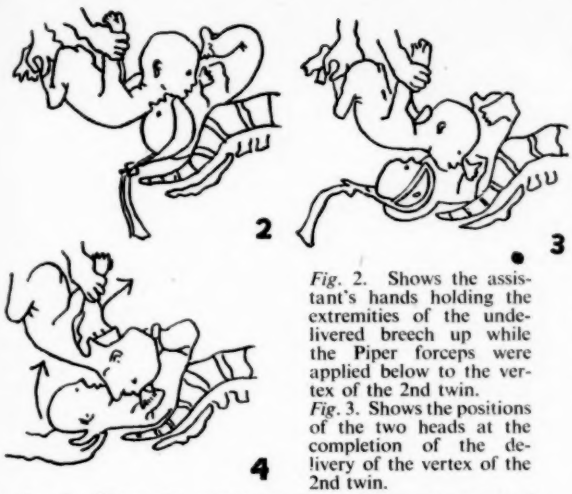

Fig. 2. Shows the assistant's hands holding the extremities of the undelivered breech up while the Piper forceps were applied below to the vertex of the 2nd twin.
Fig. 3. Shows the positions of the two heads at the completion of the delivery of the vertex of the 2nd twin.

Fig. 4. Shows the manoeuvre for producing simultaneous[5] delivery; the arrows show the direction of the manual traction to be used. (After Kimball and Rand,[5] *American Journal of Obstetrics and Gynecology*.)

the extremities, Piper forceps are applied below to the vertex of the 2nd twin. After completion of the delivery of the vertex of the 2nd twin, simultaneous delivery of both twins is effected by manual traction. These manoeuvres are illustrated in Figs. 2, 3 and 4.

SUMMARY

1. A case of chin-to-chin locked twins is described, which occurred at the King Edward VIII Hospital, Durban.

2. Interlocking or collision of twins is a rare obstetrical complication, occurring in 1 in 1,000 twin labours. It cannot be predicted before the onset of labour.

3. Four groups of different types of locking mechanisms are described, with brief references to illustrative cases.

4. The treatment, ideally, is Caesarean section in order to obtain live infants, but often a destructive operation is performed. A method of simultaneous delivery of chin-to-chin locked twins, using Piper forceps, is illustrated.

I should like to thank Dr. S. Disler, Medical Superintendent of King Edward VIII Hospital, Durban, for permission to publish the case reported. I also thank Dr. D. Geldenhys, who assisted me with the deliveries, and Dr. A. Cilliers, the anaesthetist. In the preparation of this article, and for helpful advice, I am indebted to Dr. Hector MacLennan, Consultant Gynaecologist, The Victoria Infirmary, Glasgow, Scotland.

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CO-EXISTING INTRA-UTERINE AND EXTRA-UTERINE PREGNANCIES

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Amongst the most unusual occurrences in obstetric practice is the co-existence of intra-uterine and extra-uterine pregnancies. Advanced extra-uterine pregnancy is a very rare occurrence; its combination with an intra-uterine pregnancy proceeding to normal delivery is so rare that very few cases have been recorded in the world literature. It is felt that an addition of such a case is worthy of recording.

A Bantu female aged 36 years was seen on 10 September 1955, complaining of abdominal swelling and general weakness. Some 6 weeks before she had given birth to a normal full-term live infant without any undue difficulty. The patient was a para 4 with 2 stillbirths.

She was pale and ill-looking, the abdomen was markedly distended, and considerable oedema was present in the lower limbs. Examination of the abdomen showed the presence of fluid. The blood pressure was 110/80 mm. Hg and the temperature was 100° F.

On admission to hospital, paracentesis abdominis was performed, when 4 pints of chocolate-coloured purulent fluid was removed. After paracentesis a large, freely-mobile tumour could be felt in the upper abdomen to the left of the mid-line and extending up to the costal margin.

Although a definite diagnosis was not made, a laparotomy was decided upon and performed on 16 September. The abdomen was opened through a left upper paramedian incision, and a fully formed placenta, matted together with omentum, presented itself. Closely

associated with the placenta was a sac which occupied the anterior portion of the abdominal cavity. This contained a macerated male foetus weighing 2½lb. and measuring 10 inches in length. The cord was severed as near to the placenta as possible and the foetus was removed, the placenta being left *in situ*. The abdomen was closed in layers, after corrugated drainage tubes had been inserted down to the sac.

The patient made an uneventful recovery, although drainage continued through a sinus tract which eventually was completely closed by 8 October 1955, when the patient was discharged from hospital.

DIE KARL BREMER - HOSPITAAL : OPENINGSREDE VAN DIE MINISTER VAN GESONDHEID

The following is an extract of the address delivered by the Minister of Health (the Hon. J. F. T. Naudé) at the formal opening of the Karl Bremer Hospital, Bellville, Cape, which is to serve for a time as the University Hospital for the Medical Faculty of the University of Stellenbosch.

Dit is die tweede keer binne 'n jaar dat ek gevra is om 'n groot nuwe provinsiale hospitaal in Kaapland te open. In Oktober verlede jaar was dit die Livingstone-hospitaal vir nie-Blankes in Port Elizabeth en vandag is dit hierdie mooi nuwe hospitaal vir die Noordelike Stadsgebiede. Dit is 'n sprekende bewys dat hierdie Provinsie vasberade is om sy deel by te dra tot die verskaffing van daardie dienste waarvoor daar ongelukkig vandag nog so 'n groot en dringende behoefte in ons land bestaan.

As Minister van Gesondheid is daar seker vir my geen groter plesier as om 'n nuwe hospitaal te sien verrys nie want elke nuwe hospitaal wat voltooi word, is 'n stap vorentoe op die lang en moeilike pad na volksgesondheid. Elke nuwe hospitaal bring ons 'n bietjie nader aan die groot ideaal van toereikende en doeltreffende mediese dienste wat binne bereik behoort te wees van elke burger van hierdie land wat dit nodig het, afgesien van sy ras, sy geloof en sy geldelike omstandighede. Ten einde hierdie ideaal te verwesenlik is die eerste en vernaamste vereiste die daarstelling van 'n voldoende aantal goed toegeruste hospitale waar die beste behandeling vir elke kwaal gegee kan word, waar geneeshere en ander gesondheidspersoneel opgelei kan word en waar geleenthede geskep word vir lewensbelangrike mediese navorsing. Die hospitaal bly steeds die middelpunt van ons gesondheidsdienste en sonder die nodige hospitale is die uitbreiding en verbetering van gesondheidsdienste bykans 'n onbegonne taak.

MEER DOKTERS NODIG

Die noodsaaklikheid van die opleiding van voldoende bekwame medici kan nie oorbenadruk word nie. Ons het reeds met 'n tekort op hierdie gebied te doen en daar is geen tekens dat die aanwas in ons aantal medici tred sal hou met die aanwas van ons bevolking nie. Instede dat ons medici in toenemende getalle oplei was daar werklik 'n daling op hierdie gebied oor die laaste paar jaar, soos uit onderstaande gegewens van studente wat jaarliks hul opleiding voltooi het, sal blyk:

	Universiteit Kaapstad	*Universiteit Witwatersrand*	*Universiteit Pretoria*	*Totaal*
1951 ..	165	167	81	413
1952 ..	126	178	86	390
1953 ..	115	109	76	300
1954 ..	122	116	64	302
1955 ..	100	85	59	244

As gevolg hiervan sal daar 'n stremmende tekort aan interns in ons hospitale wees en sal die Provinsiale Administrasie moet oorweeg welke stappe om te neem ten einde te verseker dat die belange van pasiënte beskerm word.

Die sukses van 'n mediese skool verbonde aan 'n Universiteit is tot 'n groot mate afhanklik van die beskikbaarheid van kliniese materiaal vir instruksiedoeleindes en in hierdie verband is dit van die uiterste belang dat daar die nouste samewerking moet bestaan tussen die Universiteitsowerhede en die owerhede wat vir hospitalisasie verantwoordelik is.

Die daarstelling van 'n akademiese hospitaal bring 'n hoër standaard van pasiëntversorging mee want dit is logies dat waar daar 'n meer grondige ondersoek na 'n kliniese toestand is daar noodwendig 'n meer bevredigende toepassing van die terapie na aanleiding van die bevinding moet wees.

Ons moet nie die pasiënte in ons akademiese hospitale as proefkonyne beskou nie—inteendeel moet ons erken dat hulle beter behandeling ontvang van 'n personeel, wat voortdurend op hoogte moet bly van 'n hoë standaard van geneeskundige kennis as wat hulle sou ontvang het van 'n personeel wat nie aan onderrig deelneem nie.

Die Mediese Skool van die Universiteit van Stellenbosch sal in baie noue verband met die Kaaplandse Provinsiale Administrasie staan. Mag ek die nouste moontlike samewerking tussen hierdie twee owerhede aanbeveel as die beste wyse om die beste opleiding vir ons toekomstige geneeshere te verkry.

In die noorde bestaan daar ook die hartlikste samewerking tussen die twee Mediese Skole. Uitruiling van eksaminatore vind plaas en daar is voortdurend onderlinge professionele raadpleging en bespreking. Ek vertrou dat die samewerking tussen die Universiteite van Kaapland en Stellenbosch op hierdie gebied ewe hartlik en lonend sal wees.

OPLEIDING VAN VERPLEEGSTERS

Ons het tot dusver slegs gepraat, wat opleiding betref, van die opleiding van medici in hierdie nuwe toevoeging tot die gesondheidsdiens van ons land. Laat ons egter ook nie uit die oog verloor al die ander opleiding wat hier sal plaasvind nie, veral wat verpleegsters betref nie. Sonder die verpleegster en die ander geneeskundige hulppersoneel staan die geneesheer magteloos om sy groot taak te volbring. Dit is dan nodig dat hierdie hospitaal ook in dié verband sy plek volwaardig sal volstaan, dat hy steeds sal voortgaan om al die ander eenhede wat ons gesondheidsdiens so nodig het op te lei, nie net in voldoende getalle nie, nie net in die benodigde tegniese bedrewenheid nie, maar ook in die essensiële menslike eienskappe en humanitêre beskouings wat vir 'n doeltreffende diens ewe onmisbaar is. Mag al die opleiding wat hierin sal plaasvind, dié van medici, verpleegsters en hulpersoneel, homself hier en daarbuite altyd slegs ten doel stel die hoë ideaal van diens aan die medemens.

DUUR MEDIESE BEHANDELING

Daar is nou een saak waarna ek graag wil verwys, nie alleen as Minister van Gesondheid nie, maar ook as gewone leek en belastingbetaler, en dit is die toenemende gebruik van duur middels in ons hospitale, sowel as voorgeskrywe deur private dokters. Dit kan nou aangevoer word dat ons die voordeel daarvan trek in die vorm van korter tydperke van hospitalisasie en spoediger herstel, en dat ons land as geheel die voordeel trek uit die gevolglike vroeër terugkeer van persone na hul normale werkkringe. Die geweldige belang daarvan is vanselfsprekend.

Tog voel ek geroepe om in hierdie verband 'n woord van waarskuwing tot ons Medici sowel as tot ons Aptekerswese te rig. Ek kom daeliks in aanraking met die gewone burger wat die koste moet betaal en ek wil ons Medici en Aptekers verseker dat die publiek kriewelig en krities word oor die hoë koste van medisyne wat tot 'n groot mate deur groothandels-ondernemings vervaardig word en dan in kleiner hoeveelhede deur aptekers en medici aan die publiek verskaf word.

Ons medici en aptekers moet besef, of hulle noual in die private praktyk of die diens van die Staat staan, dat daar 'n dubbele verantwoordelikheid op hulle rus om nie net te heel nie maar ook om gedurig in gedagte te hou die finansiële draagkrag van diegene wat die las in verband daarmee moet dra. Dit sou voorwaar 'n tragiese dag vir ons land wees as ons die stadium moes bereik waar ons nie meer genesing kan bekostig nie weens te hoë koste. Mag dit altyd ons doel en strewe bly, mag dit ook altyd die onderrigbeleid van ons mediese skole wees, dat geneeskundige behandeling altyd voorsien sal word op die mees ekono-

miese basis wat die toestand en noodsaaklike herstel van die pasiënt toelaat. So sal dit steeds ons strewe wees om doeltreffende dienste te lewer teen die laagste koste moontlik.

Soos u seker reeds weet is dit nou die voorneme om 'n tweede groot hospitaal by Parow op te rig wat later as opleidingshospitaal deur die Stellenbosch Universiteit gebruik sal word. Intussen sal die Karl Bremer Hospitaal egter vir hierdie doel gebruik word.

DR. KARL BREMER

En nou kom ek by die gedeelte van my rede wat vir my as persoon van besondere belang is. Ek voel gelukkig dat dit my te beurt geval het om hulde te bring aan die nagedagtenis van die groot en beminde Afrikaner wie se naam aan hierdie hospitaal gegee is: Dr. Karl Bremer. Ek is baie dankbaar dat dit moontlik was vir mevr. Bremer om ook hier teenwoordig te wees vandag en ek weet ek spreek namens ons almal as ek haar spesiaal hier welkom heet in ons midde.

Ek het die voorreg gehad om vir Karl Bremer vir al die jare te ken vandat hy Volksraadslid geword het vir Graaff Reinet in 1924 tot sy dood in 1953. Ek het hom geken as vriend, as mede Volksraadslid, en as Kollega in die Kabinet, en wat ek hier van hom getuig doen ek in alle opregtheid as iemand wat hom van naby geken het.

Dit was 'n baie gelukkige ingewing van die Administrateur en sy Uitvoerende Komitee om wyle dr. Bremer op hierdie wyse te vereer. Die besluit het dadelik algemene byval gevind en ek is persoonlik oortuig daarvan dat geen beter naam gekies kon word nie.

THE HOSPITAL

Every effort has been made to provide a modern well-equipped hospital of which our country can indeed be proud. You will have the opportunity today of inspecting the buildings and seeing everything for yourselves and I will, therefore, not bore you with the finer details. I may say, however, that the hospital has been designed to provide accommodation for 386 patients, including 26 beds for children. In the Nurses' Home accommodation has been provided for 260 nurses in single rooms, and in the resident medical officers' quarters 15 doctors will be accommodated. For the present the hospital will open with 150 beds. The remaining beds will gradually be requisitioned as more staff and equipment become available.

You will no doubt also be interested to know what it cost the Administration to build the hospital. I have been informed that the buildings and installations are expected to cost £1,146,000 and the furniture and equipment £100,000. From these figures it will be seen what an expensive undertaking the building of a modern well equipped hospital has become costing, £3,000 per bed inclusive of everything, and it is no wonder the Provincial Administrations are finding it increasingly difficult to continue their vast building programme without straining their financial resources to the utmost.

Ten slotte wil el die vurige hoop koester en die wens uitspreek dat dit ten alle tye die heelhartige ondersteuning van die publiek sal geniet en mag die seën van die Allerhoogste op hierdie gebou rus en op die noodsaaklike werk wat hier gedoen sal word.

PATHOLOGICAL LABORATORY SERVICES PROVIDED BY THE UNION HEALTH DEPARTMENT

The following rules have been published in Government Notice No. 1073 of 22 June 1956:

PATHOLOGICAL LABORATORY SERVICES. RULES FOR THE CARRYING OUT OF LABORATORY TESTS.

1. CANCELLATION OF PREVIOUS GOVERNMENT NOTICES.

With effect as from the 1st July, 1956, Government Notices No. 2397, dated the 14th November, 1947, and No. 1888, dated the 17th September, 1954, are hereby cancelled and the following new rules shall be applicable to pathological laboratory services as provided by the Union Health Department.

2. LABORATORIES WHERE PATHOLOGICAL LABORATORY SERVICES WILL BE PROVIDED.

Pathological (microbiological, biochemical and cytological) laboratory services will be provided by the Union Health Department at the following laboratories:

(*a*) The Government Pathological Laboratory, Cape Town.
(*b*) The Government Pathological Laboratory, Durban.
(*c*) The East London and Border Pathological Laboratory, East London.
(*d*) The South African Institute for Medical Research, Johannesburg.
(*e*) The South African Institute for Medical Research, Bloemfontein.
(*f*) The South African Institute for Medical Research, Port Elizabeth.
(*g*) The South African Institute for Medical Research, Kroonstad.
(*h*) The South African Blood Transfusion Service, Johannesburg [in respect only to services provided under section 3 (ii) of this notice].
(*i*) Such other pathological laboratories with which the Union Health Department has entered into contracts, approved by Treasury, for the provision of such services.

3. LABORATORY SERVICES WHICH ARE PROVIDED FREE OF CHARGE.

The following services will be provided free of charge:

(i) *Services in respect of the Diagnosis and Control of Infectious and Communicable Diseases*

(*a*) These free services will be restricted to laboratary tests for the diagnosis and public health control of the following diseases:

Anthrax,
bacillary dysentery,
bacterial food poisoning,
bilharziasis,
brucelloses,
meningococcal meningitis and septicaemia.

4. LABORATORY SERVICES FOR WHICH CHARGES WILL BE MADE

(i) *Services to Local Authorities in respect of the Bacteriological Examination of Samples of Waters which are Intended for Domestic Use.*

The charge to a local authority for the bacteriological testing of a sample of water shall be £1. 10s. per sample, but if a prior special arrangement has been authorised by the Chief Regional Health Officer of the region for a local authority to submit (over a period of one year) samples for the regular testing of a particular domestic water supply, this charge will be reduced to 5s. per sample, Before such a special arrangement may be authorised, the local authority shall furnish the Chief Regional Health Officer with an adequate description of the water supply in question and the latter shall stipulate the conditions under which the samples may be submitted with special reference to the number of samples and times of delivery at the laboratory. These special arrangements may be renewed annually.

It is essential for valid tests that the samples of water should be kept continuously at a low temperature from the time of collection until the time of delivery to the laboratory, For this reason the bottles containing the water samples should, during this period, be packed surrounded by ice in a special insulated box which should reach the laboratory before all the ice has melted.

The sterile bottles required for collecting the water samples may be furnished on request by the nearest laboratory but the ice and insulated boxes must be provided by the local authority at its cost. The boxes will be promptly returned to the local authorities after receipt at the laboratory.

(ii) *Other Laboratory Services which may be Rendered to Local Authorities and which are not Covered Elsewhere in this Notice.*

Other bacteriological tests which are of direct public health interest and which are not covered elsewhere in this notice, e.g. the routine bacteriological testing of dairy products and sewage effluents, may be carried out at a charge of £2 per specimen but

if a prior special arrangement has been authorised by the Chief Regional Health Officer of the region for a local authority to submit samples for regular testing the charge will be reduced to 10s. per sample.

(iii) *Services which may be Rendered to Other Administrations.* Pathological laboratory services may be provided at the Government Pathological Laboratories at Cape Town and Durban to the following administrations:

(*a*) The several Provincial Administrations;

(*b*) the South West African Administration; and

(*c*) the South African Railways and Harbours Administration. (But not the South African Railways Sick Fund.)

The charges for tests will be such as have been approved by Treasury.

5. GENERAL RULES APPLICABLE TO THE CARRYING OUT OF LABORATORY TESTS

All tests which are carried out at the laboratories will be subject to the following conditions:

(*a*) All specimens forwarded to the laboratories for testing shall be delivered in suitable containers which do not leak, which are properly labelled with identification marks and which are accompanied by adequately completed request forms giving all necessary particulars, viz., the name and address of the sender, the identification mark and the nature of the specimen, the type of test desired and a brief account of the circumstances which necessitate the examination. These request forms should be signed by a responsible person, e.g. the medical officer in charge of the patient.

Suitable containers with labels and printed request forms may be obtained, in reasonable quantities, on application to the pathologist in charge of the nearest laboratory.

Containers supplied by a laboratory remain at all times the property of the laboratory and must be used for no purpose other than that of transmitting specimens to the laboratory whence they were obtained.

(*b*) All specimens must be delivered to the laboratory free of charge for carriage or postage.

(*c*) All specimens forwarded by post, rail or air must be so packed as to comply strictly with relevant regulations.

(*d*) Subject to such general instructions as may from time to time be issued by the Minister, the examination of specimens received shall be at the discretion of the pathologist in charge of the laboratory who may arrange to carry out particular tests only on certain days of the week or who may decline to undertake any tests which he considers to be necessary. The methods employed for testing shall also be at the pathologists' discretion.

(*e*) When the sender wishes the same test to be repeated on similar specimens from the same patient, he must clearly state on the request form that the specimen is a repeated one and he must also indicate thereon the reasons for repeating the specimen and whether it is being repeated for a first or subsequent time. The result of previous examination(s) must be indicated. The pathologist in charge of the laboratory may lay down rules as to when and how often specimens may be repeated and he may decline to examine specimens which he considers to have been unneccessarily repeated.

(*f*) Reports on specimens from patients must be regarded as confidential and not be shown to persons who are not entitled to see them.

(*g*) Under no circumstances may reports or results of tests be used for trade or advertising purposes.

(*h*) Specimens will not be returned to the sender unless he has requested this at the time of sending and has prepaid the cost of returning the specimens.

(*i*) For information as to what specimens to take for testing in respect of various diseases, how and when to send such specimens to the laboratory, when to request repetition of tests and what test are routinely employed at the laboratory, medical practitioners should apply to the pathologist in charge of the laboratory for a copy of the relevant pamphlet.

WORKMENS' REHABILITATION CENTRE

The Chairman of the Rehabilitation Centre for Injured Workmen, Johannesburg, has addressed the following circular on this subject to members of the medical profession under date May 1956:

I have much pleasure in advising you that the Rehabilitation Association for Injured Workmen has established the 'Workmen's Rehabilitation Centre' at 15 Esselen Street (corner of King George's Street), Hospital Hill, Johannesburg, which provides full hospital treatment and physical rehabilitative facilities for European workmen undergoing medical treatment for injuries sustained in accidents which are acceptable under the Workmen's Compensation Act. This Centre is entirely independent, and is not controlled by any hospital, nursing home, private hospital, or nursing institution.

The Rehabilitation Association for Injured Workmen is a non-profit company registered under the Companies Act, and representatives of insurance carriers under the Act, including the Wokmen's Compensation Commissioner, serve on its Board of Directors.

The Centre has been designed especially to cater for serious traumatic cases, which would normally entail lengthy absences from work and/or result in serious permanent disablement, the object being to reduce as far as possible the period of temporary disablement as well as the resultant degree of permanent disablement. In other words, the aim of the Association is to restore the injured worker as nearly as possible to his pre-accident produciive capacity as soon as possible. This will operate to the economic and social advantage not only of the worker himself but also of the employer and the community as a whole.

The injured workman has free choice of doctor. Any doctor who wishes to admit a workmen's compensation patient to the Centre should contact the Medical Administrator, or his Deputy, by telephone, number 44-9101. When an injured workman admitted to the Centre has not yet selected his own doctor and is not in a fit state to do so, a practitioner will be nominated by the Medical Association of South Africa (Southern Transvaal Branch) from its own panel of doctors to take charge of the case.

In addition to up-to-date theatre and other facilities, the Centre provides facilities for (*a*) physiotherapy, (*b*) occupational therapy, (*c*) gymnastic and remedial exercises, (*d*) in-patient and out-patient treatment, (*e*) socio-economic guidance.

The Association's secretariat at the Centre will maintain close contact with insurance carriers under the Workmen's Compensation Act in regard to cases admitted to the Centre, and will ensure, *inter alia*, that: (1) assistance will be given to doctors in maintaining records, and (2) a secretarial service is made available to those medical men who have patients at the Centre, and who wish to dictate notes.

Regular clinical meetings will be arranged by the Medical Administrator for the purpose of discussing clinical problems brought to the meeting by doctors treating cases at the Centre. These meetings will be attended voluntarily by practitioners, and all doctors are welcome to attend.

No attempt will be made to impose upon any doctor any direction as to how he should deal with his case. He will be left complete clinical discretion in handling the problems of the patient. He is entitled to exercise his discretion and choice in consulting any other colleague, including specialists in physical medicine, radiologists, etc.

A medical representative of the Workmen's Compensation Commissioner's office, Pretoria, will be in attendance at the above-mentioned meetings for the assistance of medical practitioners in medical matters relating to the condition of the injured workman. By this liaison with medical men, the assessment of the degree of disability will be materially facilitated.

The Medical Administrator of the Centre, Dr. Boris Serebro, in an administrative and non-clinical capacity, will be available to supply information, and answer queries on all the aspects and activities of the Centre.

Doctors' accounts should, as in the past, be rendered to the employer concerned, as the Association is not responsible for the payment of medical fees.

Your kind cooperation and support will be much appreciated.

SELECT LIST OF RECENT ACCESSIONS TO THE MEDICAL LIBRARY, UNIVERSITY OF CAPE TOWN

Adams, J. C. Outline of Orthopaedics. Edinburgh. Livingstone. 1956.

Adriani, J. The Pharmacology of Anaesthetic Drugs. Third edition. Reprinted. Springfield, Ill. Thomas. 1954.

American Cancer Society and Others. Annual Report on the Results of Treatment in Carcinoma of the Uterus. Tenth volume. Stockholm. Editorial Office of the Annual Report. 1955.

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Charlewood, G. P. Bantu Gynaecology. Johannesburg. Photo Publ. Co. and Witwatersrand U.P. 1956.

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Etter, L. E. Atlas of the Roentgen Anatomy of the Skull. Springfield, Ill. Thomas. 1955.

Friedenwald, J. S. and Others. Ophthalmic Pathology. Philadelphia. Saunders. 1952.

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Ikin, A. G. New Concepts of Healing. London. Hodder and Stoughton. 1955.

International Congress of Gynaecology and Obstetrics. Geneva. 1954. Scientific Exhibition at the Congress. Bâle. Comité du Congrès. (1954.)

Jeliffe, D. B. Infant Nutrition in the Subtropics and Tropics. Geneva. W.H.O. 1955.

Leigh, M. D. and M. K. Belton. Pediatric Anesthesia. New York. MacMillan. 1956.

Lewis, T. L. T. Progress in Clinical Obstetrics and Gynaecology. London. Churchill. 1956.

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McLean, F. C. and M. R. Urist. Bone; an Introduction to the Physiology of Skeletal Tissue. Chicago U.P. 1955.

Mayo Clinic. Committee on Dietetics. Diet Manual. Second edition. Philadelphia. Saunders. 1954.

Medical Library Association. Handbook of Medical Library Practice. Second edition. Chicago. American Library Association. 1956.

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UNION DEPARTMENT OF HEALTH BULLETIN

Union Department of Health Bulletin. Report for the 7 days ended 21 June 1956.

Plague, Smallpox, Typhus Fever. Nil.

Epidemic Diseases in Other Countries.

Plague: Nil.

Cholera in Calcutta, Lucknow (India); Chittagong, Dacca (Pakistan).

Smallpox in Mergui, Rangoon (Burma); Phnom-Penh (Cambodia); Ahmedabad, Allahabad, Bombay, Calcutta, Cannanore, Cuddalore, Delhi, Karikal, Lucknow, Mahé, Pondicherry, Visakhapatnam (India); Dacca, Lahore (Pakistan); Mombasa (Kenya).

Typhus Fever in Baghdad (Iraq); Alexandria, Cairo (Egypt).

PASSING EVENTS : IN DIE VERBYGAAN

Financial provisions re Tuberculosis. The Public Health Amendment Act, 1956 (No. 60 of 1956) was published in the Government Gazette Extraodinary No. 5700 of 19 June 1956. It relieves the Provincial Administrators of responsibility for any part of the part-refund (seven-eighths) which local authorities receive from the Government in respect of their approved net expenditure in maintaining and managing institutions for the care and treatment of persons suffering from tuberculosis in a communicable form, and otherwise in the treatment and care of persons so suffering.

* * *

Dr. I. Schrire, formerly of 1 Hof Street, Cape Town, is now working for the Medical Research Council, England, in the Endocrinology Department of the New End Hospital, London. He is also in private consultant practice at 83 Harley Street, London, W 1.

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Transvaal Branch of the Radiological Society of South Africa. The following office bearers of the Transvaal Sub-group of the Radiological Society of South Africa were elected at the annual general meeting of the sub-group held in April 1956: *Chairman*—Dr. M. H. Fainsinger. *Vice-Chairman*—Dr. C. Komins. *Secretary Treasurer*—Dr. M. J. Meyer. *Committee Members*—Dr. I. A. Brotman, Dr. H. Osler, Dr. M. H. Hellman, Dr. I. Strasburg.

* * *

Lede word daaraan herinner dat hulle die Sekretaris van die Mediese Vereniging van Suid-Afrika, Posbus 643, Kaapstad, sowel as die Registrateur van die Suid-Afrikaanse Mediese en Tandheelkundige Raad, Posbus 205, Pretoria, moet verwittig van enige adresverandering.

Versuim hiervan beteken dat die *Tydskrif* nie afgelewer kan word nie. Dit het betrekking op lede wat oorsee gaan sowel as dié wat binne die Unie van adres verander.

* * *

The Ninth International Congress on Rheumatic Diseases will be held at Toronto, Ontario, Canada on 23-28 June 1957. This quadrennial function of *La Ligue Internationale contre le Rhumatisme* will be convened under the auspices of the Canadian Rheumatism Association. The Programme Committee invites contributions to the scientific programme of the Congress, and is anxious to receive reports on current clinical and scientific research dealing with any aspect of rheumatic diseases. It is proposed to give approximately equal emphasis to clinical and basic science subjects.

The following tentative list of subjects has been prepared, but papers will not necessarily be restricted to these topics: Rheumatoid Arthritis and its variants. Marie-Strumpell spondylitis. Degenerative joint disease. Rheumatic fever. Gout. Arthritis due to infection. Non-articular rheumatism. Psychogenic rheumatism. Diffuse diseases of collagen-containing tissues. Osteoporosis. Miscellaneous articular disorders, such as traumatic arthritis, neurogenic arthropathy, congenital abnormalities, new growths. Back pain. The painful shoulder. Surgical procedures in the rheumatic diseases. Rehabilitation. Reports on therapeutic agents. Basic studies on connective tissues. Biochemical research. Twenty-four papers (20 minutes each) will be selected for plenary sessions, and about 250 papers (10 minutes each) for concurrent sessions. Official languages will be English, French, German, and Spanish, and complete translation facilities will be available at all plenary and concurrent sessions. The social events include a post-congress tour to the Niagara Falls.

All correspondence should be addressed to P.O. Box No. 237, Terminal 'A', Toronto, Ontario, Canada (cable address 'Incongress', Toronto).

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A Congress of the International Professional Union of Gynecologists and Obstetricians (Union Professionnelle Internationale des Gynecologues et Obstetriciiens—U.P.I.G.O.) will be held on 28-28 September at Madrid, Spain. The subjects to be discussed include the study of existing or possible systems of private health insurance concerning obstetricians and gynaecologists; and the settlement of young gynaecologists and obstetrician specialists, and the ways of assisting them.

Excursions will be arranged to Escorial, Toledo, Aranjuez, Cordoba, Granada, Malaga and Seville.

Enquiries may be directed to Dr. J. Courtois, Permanent General Secretary, 1, rue Racine, Saint-Gerain-en-Laye (S.-&-O.), France.

The U.P.I.G.O. was established in Paris in June 1955 at the the first Congress in order to provide an international organization for gynaecologists and obstetricians. Particulars may be obtained of Dr. J. Courtois at the above address.

* * *

Expenditure on Out-patient Services: Refund Regulations. In Government Notice 1094 of 22 June 1956 the Minister of Health has promulgated regulations regarding refunds in respect of expenditure incurred by an administrator or a local authority in providing out-patient services referred to in subsections (1) and (4) of Section 17 of the Public Health Amendment Act No. 51 of 1946 as amended by section 31 of Act No. 44 of 1952, and rescinding the former regulations published under Government Notice No. 648 of 1947.

* * *

Increased Fee for Registration of Speciality. In Government Notice No. 119 of 1956, an amendment made by H.E. the Governor General to the second schedule of the Medical, Dental and Pharmacy Act 1928 (as amended) is published, increasing the fee payable by a medical practitioner or dentist for the registration of a speciality from £2 2s. 0d. (the amount hitherto payable) to £15 0s. 0d.

REGULATIONS REGARDING THE DEGREES, DIPLOMAS OR CERTIFICATES ENTITLING MEDICAL PRACTITIONERS AND DENTISTS TO REGISTRATION

In Government Notice No. 321 of 24 February 1956 new regulations are published (made by H. E. the Governor General under this heading) in substitution for the regulations published under Government Notice No. 398 of 1937 as amended from time to time.

Regulation 1

Regulation 1, except for small verbal alterations, is the same as regulation 1 in the 1937 regulations (as amended) with alterations in the list of qualifications the holding of which, subject to the provisos in the clause, entitles the holder to registration as a medical practitioner. The new list is as follows (abbreviation only):

Union of South Africa: M.B., CH.B., Univ. Cape Town; M.B., CH.B., Univ. Pret.; M.B., B.CH., Univ. Rand.*

Great Britain: M.R.C.S., Eng., L.R.C.P., Lond.; L.R.C.P.&S., Edin., L.R.F.P.S., Glasg.; L.M.S.S.A., Lond.; M.B., CH.B., Univ. Aberd.; M.B., CH.B., Univ. Birm.; M.B., CH.B., Univ. Brist.; M.B., B.CHIR. Univ. Cantab.; M.B., B.S., Univ. Durh.; M.B., CH.B., Univ. Edin; M.B., Ch.B., Univ. Glasg.; M.B., CH.B., Univ. Leeds; M.B., CH.B., Univ. L'pool; M.B., B.S., Univ. Lond.; M.B., CH.B., V. Univ. Manc.; B.M., B.CH., Univ. Oxon.; M.B., CH.B., Univ. St. And.; M.B., CH.B., Univ. Sheff.; M.B., B.CH. Univ. Wales.

Northern Ireland: M.B., B.CH., Q. Univ. Belf.

Irish Free State: L., L.M., R.C.P. Ire.; L.L.M., R.C.S., Ire,; L.A.H., Dubl.; M.B., B.CH., Univ. Dubl.; L.Med., L.CH., Univ. Dubl.; M.B., B.CH., N. Univ. Irel.

Australia: M.B., B.S., Univ. Adelaide; M.B., B.S., Univ. Melb.; M.B., B.S., Univ. Queensland; M.B., B.S., Univ. Sydney; M.B., CH.M., Univ. Sydney.

New Zealand: M.B., CH.B., Univ. New Zealand.

India: L.M.S., Univ. Bombay;[1,7] M.B., B.S., Univ. Bombay;[1,7] L.M.S., Univ. Calcutta;[5,7] M.B., Univ. Calcutta;[5,7] M.B., B.S., Univ. Calcutta;[5,7] M.B., B.S., Univ. Lucknow;[2,7] L.M.S., Univ. Madras;[3,7] M.B., B.S., Univ. Madras;[3,7] M.B., C.M., Univ. Madras;[3,7] M.B., B.S., Univ. Patna.[4,7]

Pakistan: L.M.S., Univ. Punjab;[6,7] M.B., Univ. Punjab;[6,7] M.B., B.S., Univ. Punjab;[6,7]

Regulation 2.

Regulation 2, except for small verbal alterations, is the same as regulation 2 in the 1937 regulations (as amended), which provides

*In Government Notice No. 1093 of 22 June 1956 an amendment to this regulation is published adding M.B., CH.B., Univ. Natal.

for 'limited reciprocity' with the Netherlands, and which was set out in full in the *Journal* of 12 November 1955 (**29**, 1076).

Regulation 3

Regulation 3 is as follows:

(3) Subject to the provisions of the Medical, Dental and Pharmacy Act, No. 13 of 1928, and the rules and regulations in force thereunder, any of the following degrees, diplomas or certificates, when held by a British subject who (*a*) having been born in any part of the Union; or (*b*) being domiciled in the Union when he commenced his professional studies and having proceeded therefrom for the purpose of prosecuting those studies, shall entitle the holder to registration as a medical practitioner: Provided that—

(*a*) no person shall be so registered unless the degrees, diplomas or certificates held singly or conjointly by him show that he has passed qualifying examinations in medicine, surgery, and midwifery; and

(*b*) such degrees, diplomas, or certificates shall only be recognised for registration if the course of study in professional subjects covered a period of at least five academic years and, in addition, the last three years of professional study for admission to the examination for such degree, diploma, or certificate were taken at a university or medical school in the country or state in which the degree, diploma or certificate was granted, save that—

this proviso shall not apply to degrees, diplomas or certificates held by a British subject, born in the Union or domiciled in the Union when he commenced his professional studies, who proceeded therefrom prior to the 17th April, 1936, for the prosecution of his studies; and

(*c*) the holder of such a degree, diploma or certificate furnishes proof to the satisfaction of the Council that he has, since obtaining the said degree, diploma or certificate, undergone training as an intern for a total period of at least twelve months in terms of regulations made under section *twenty five* of the Act, save that—

this proviso shall not apply to the holder of any degree, diploma or certificate obtained prior to the 1st November, 1948.

(*only the abbreviations are here printed*)

Austria: M.D., Univ. Vienna.

Belgium: M.D., Univ. Brussels; M.D., Univ. Ghent; M.D., Univ. Louvain; M.D., Univ. Liége.

Canada: M.D., C.M., Univ. Manitoba; M.D., C.M., McGill Univ.; M.D., Univ. Montreal; M.B., Univ. Toronto; M.D., Univ. of Western Ontario.

France: Diploma d'Etat, France; Diplome Universitaire, France;

Germany: State Examination, Germany.

India: L.M.S., Univ. Bombay;[1] M.B., B.S., Univ. Bombay;[1] L.M.S. Univ. Calcutta;[5] M.B., Univ. Calcutta;[5] M.B., B.S., Univ. Calcutta;[5] M.B., B.S., Univ. Lucknow;[2] L.M.S. Univ. Madras;[3] M.B., B.S., Univ. Madras;[3] M.B., C.M., Univ. Madras;[3] M.B., B.S., Univ. Patna.[4]

Netherlands: Arts Examen, Netherlands.

Pakistan: L.M.S., Univ. Punjab;[6] M.B., Univ. Punjab;[6] M.B., B.S., Univ. Punjab.[6]

Straits Settlements: L.M.S., Singapore M. Coll.

Sweden: L.M., Univ. Lund.; L.M., Univ. Uppsala; L.M., Med. Univ. Stockholm.

Switzerland: Staats Examen, Switzerland.

United States of America: M.D., Cornell Univ.; M.D., Columbia Univ.; M.D., Harvard Univ.; M.D., Jefferson Medical College; M.D., Johns Hopkins Univ.; M.D., St. Louis Univ.; M.D., Univ. Chicago; M.D., Univ. Michigan; M.D., Univ. Minnesota; M.D., Univ. Pennsylvania; M.D., Univ. Rochester; M.D., Yale Univ.

The certificate of the National Board of Examiners of the United States of America will be accepted in lieu of the certificates of the State Medical Boards detailed above.

Regulations 4 *and* 5

Regulations 4 and 5 apply to dental qualifications.

1. Any qualification granted on or after 25 June 1912 must have been registered in the Province. The Qualification L.M.S. ceased to be granted as from October 1917.

2. Any degree granted on or after 1 January 1919 must have been registered in the United Provinces.

3. Any qualification granted on or after 1 June 1916 must have been registered in the Province. The qualification of L.M.S. is not registrable unless its holder began professional study before 1 January 1892.

4. Only degrees granted on or after 11 May 1935 are registrable.

5. Any qualification granted on or after 27 May 1914 must have been registered in the Province. Qualifications granted between 30 November 1924, and 12 May 1928, or between 25 February 1930 and 15 October 1936 are not registrable.

6. Any qualification granted on or after 1 January 1918 must have been registered in the Province.

7. The qualifications will only be accepted if granted on or before 31 March 1942.

REVIEWS OF BOOKS : BOEKRESENSIES

POLIOMYELITIS VACCINATION

Poliomyelitis Vaccination: A Preliminary Review. World Health Organization: Technical Report Series, 1956, *No. 101*; 40 pages. 1s. 9d. Available also in French and Spanish. Local Sales Agent: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724, Pretoria.

Contents: 1. Introduction. 2. Experience with poliomyelitis vaccination in various countries. 3. Safety testing. 4. Selection of strains for inactivated poliomyelitis vaccine. 5. Antigenicity tests. 6. Theoretical complications of vaccination against poliomyelitis. 7. Public health application of inactivated poliomyelitis vaccine under different epidemiological conditions. 8. Live virus vaccines. 9. Design and techniques of serological surveys. 10. Conclusions. Annex 1. Poliomyelitis vaccine antigenicity and potency tests. Annex 2. Selection of strains for inactivated poliomyelitis vaccine. Annex 3. Present status of work on immunization of human beings with living attenuated poliomyelitis virus. Annex 4. Studies of immunization of man against poliomyelitis with living attenuated virus.

Poliomyelitis vaccination is of great current interest in South Africa, as in other countries. The rapid transition of poliomyelitis vaccine from a laboratory development to a widely used public health weapon was, almost inevitably, accompanied by serious difficulties. The occurrence of accidents during large-scale application in the USA in 1955 gave rise to much caution on the part of health authorities in many countries, and vaccination proggrammes were suddenly halted, as in South Africa.

In November 1955 the WHO convened in Stockholm a group of scientists qualified to review the present position of poliomyelitis vaccination and to provide some measure of guidance for public health authorities. Included in this group was Dr. J. H. S. Gear, Director of Research, Poliomyelitis Research Foundation, Johannesburg, who was appointed as rapporteur of the group. The collective views of this international group are presented in this WHO Technical Report which is termed a 'preliminary review' of poliomyelitis vaccination.

Following a brief introduction, the report describes experience with poliomyelitis vaccination in a number of countries (the USA, Canada, Denmark, France, Germany, the Union of South Africa and Sweden), as summarized by members of the group. Attention is then turned to problems in the production of the vaccine. First, there is a detailed consideration of the safety tests currently applied to the vaccine in different countries, including control of the inactivation process, the final tissue-culture safety test, the monkey safety test, and other safety tests. This is followed by sections on selection of strains for inactivated poliomyelitis vaccine and on antigenicity tests. Other parts of the report are devoted to discussion of the theoretical complications of vaccination against poliomyelitis; live virus vaccines, which are considered to be in the early experimental stages of development; and the design and techniques of serological surveys in connexion with poliomyelitis vaccination.

Under the heading 'Public health application of inactivated

poliomyelitis vaccine under different epidemiological conditions', an attempt is made to answer the questions with which the health officer is faced when he has to decide whether or not to recommend poliomyelitis vaccination as a general public-health measure. The various risks and benefits are weighed, and attention is drawn to the 'unknowns' in poliomyelitis vaccination.

The report proper is concluded with a summary of the views of the group on the routine use of poliomyelitis vaccine and an outline of the problems on which further research is needed.

Technical annexes contain brief papers, by authorities of renown, on (1) poliomyelitis vaccine antigenicity and potency tests, (2) the selection of strains for inactivated poliomyelitis vaccine, (3) the present status of work on immunization of human beings with living attenuated poliomyelitis viruses, and (4) studies of immunization of man against poliomyelitis with living attenuated virus.

This report meets an immediate need. It provides an authoritative review, by a group of internationally known scientists, on one of the most promising of recent developments in disease prevention.

EXPERT COMMITTEE ON BIOLOGICAL STANDARDIZATION

Expert Committee on Biological Standardization, Eighth Report. World Health Organization: Technical Report Series, 1955, *No.* 96, 19 pages. 1s. 9d. Available also in French and Spanish Local Sales Agent: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724, Pretoria.

Contents: Immunological. 1. Blood-typing sera. 2. Cholera vaccines, antigens, and sera. 3. Clostridium welchii (perfringens) antitoxins. 4. Diphtheria toxoid and Schick-test toxin. 5. Influenza vaccines and diagnostic reagents. 6. Opacity, International Reference Preparation. 7. Pertussis vaccine and serum. 8. Poliomyelitis vaccines. 9. Q-Fever serum. 10. Rabies serum and vaccine. 11. Swine erysipelas serum, anti-N. 12. Syphilis diagnostic reagents and sera. 13. Tuberculin, avian. 14. Typhoid and paratyphoid sera and vaccines. Pharmacological. Antibiotics. 15. Oxytetracycline. 16. Newer antibiotics (carbomycin, erythromycin, neomycin, polymyxin B, tetracycline, viomycin). 17. Procaine benzylpenicillin in oil with aluminium monostearate (PAM). Hormones (and Protamine). 18. Anterior pituitary hormones (adrenocortocotrophic hormone, prolactin, thyrotrophin). 19. Insulin. 20. Protamine. Miscellaneous. 21. Dextran sulfate. 22. Hyaluronidase. 23. Male fern. 24. Melaminyl trypanocides. 25. Ouabain. 26. Pyrogens. 27. Vitamin A. 28. Author's Preparations. 29. Stability of international standards. 30. Biological assay methods for the *Pharmacopoea Internationalis*. 31. International shigella centres. Annex. Notes on Author's Preparations.

The eighth report of the Expert Committee on Biological Standardization records the establishment of International Standards and Reference Preparations for a number of substances: Schick Test Toxin (Diphtheria); *Clostridium welchii* (*perfringens*) Antitoxins, Type B and Type D; Swine Erysipelas Serum, Anti-N; Purified Protein Derivative of Avian Tuberculin; Thyrotrophin; Protamine; and the melaminyl trypanocides Mel B and MSb. International Unitages were assigned by the Committee to some of these newly established standards and reference preparations and also to the International Standard for Anti-Q-Fever Serum, which was established last year.

DRIED BCG VACCINE

Dried BCG Vaccine. By Yogi Obayashi, M.D. Pp. 220, with tables. £1 5s. 0d. Geneva: World Health Organization. 1955.

Contents: 1. Cultivation and Human Inoculation Tests. 2. Cultivation Test of BCG Vaccine. 3. Present Method of Production. 4. Hand Shaking Method of BCG Production with Crystal or Agate Balls. 5. Culture Period of BCG on Sauton Medium. 6. Method of Freeze-Drying. 7. Effect of Freeze-Drying on Potency of BCG Vaccine. 8. Effect of Storage on Viability and Potency of BCG Vaccine, with Special Reference to Storage Temperature. 9. Effect of Light on Viability and Potency of BCG Vaccine. 10. Effect of Degree of Vacuum on Preservability of Dried BCG Vaccine. 11. Effect of Residual Moisture on Preservability of Dried BCG Vaccine. 12. Viability and Allergenic Potency of Mass-Produced Dried BCG Vaccine. Conclusions. References. Index.

One of the major problems in mass BCG-vaccination campaigns, especially in tropical and sub-tropical countries, is the deterioration of the liquid vaccine during its transport over long distances from production centre to vaccination centre: heat and light weaken the antigenic potency of the vaccine by decreasing the number of viable bacilli, with a consequent reduction in the efficacy of the vaccine. For several years the possibility of freeze-drying BCG has been considered, in the hope of thus obtaining a product which would be more stable and, at the same time, retain its full potency. In Japan in particular, research on this subject has been given much attention; in fact, freeze-dried BCG vaccine has been produced on a semi-industrial scale in that country since 1949.

In this monograph WHO makes available to all concerned the results of Japanese studies which have previously been accessible to workers in other countries only in the form of summaries. Following chapters on cultivation and inoculation tests used in his experiments, Dr. Obayashi describes the present method of production of dried BCG vaccine. He discusses in detail the freeze-drying method and the effects of this procedure on the potency of the vaccine. He then compares dried and liquid vaccine from the standpoints of viability, preservability, and potency. He concludes that the data indicate a quantitative rather than qualitative difference between liquid and dried BCG vaccine, this difference being due to the decrease in viability which occurs during the process of freeze-drying.

The dried BCG vaccine being produced at present in Japan is considered, in that country, to have reached the stage at which it can be used more conveniently and effectively than the liquid vaccine; but, generally speaking, it does not yet fulfil all the conditions required for practical application on a large scale. Much more investigation is needed and is in progress.

WORLD HEALTH ORGANIZATION TECHNICAL REPORT

World Health Organization Technical Report Series No. 92. *Joint ILO/WHO Committee on the Hygiene of Seafarers. Second Report*. Pp. 20. 1s. 9d. Geneva: World Health Organization. 1955.

Contents: 1. Medical Advice by Radio to Ships at Sea. 2. Examination of Seafarers to Detect Tuberculosis. 3. Medicine Chests on Board Ship. 4. Maritime Aspects of the Prevention and Treatment of Venereal Diseases. 5. Future Programme. Annex.

The health of seafarers has been a matter of international as well as national concern for many years. WHO has assumed the responsibilities of the Health Organization of the League of Nations and the Office International d'Hygiene Publique in this domain, working particularly through a committee with the International Labour Organization—the Joint ILO/WHO Committee on the Hygiene of Seafarers.

This report of the Joint Committee deals first with the question of medical advice by radio to ships at sea. The existing facilities for transmitting such advice by radio seem to be satisfactory. However, the attention of governments is drawn to the desirability of ensuring that radio advice should be available at any hour of the day or night; that this advice should, where necessary, include specialist advice; and that adequate use should be made of the facilities available, with an up-to-date and complete list of the radio stations through which medical advice can be given being supplied to every ship.

Tuberculosis and venereal diseases are singled out as particular health problems among seafarers. It is recommended that all new entrants into a merchant navy be examined for tuberculosis and that periodic re-examination be encouraged, through a continuous campaign of health education. Venereal infections, although less of a problem that formerly in some countries, thanks to penicillin treatment, still warrant special consideration. Mention is made in the report of a WHO study now in progress on treatment facilities and methods at ports. The importance of contact tracing and of the treatment of infected contacts is stressed, although it is recognized that tracing contacts in the case of seafarers is often difficult and requires a system of international reporting.

A large part of the report is devoted to the subject of medicine chests on board ship. The contents and purpose of such chests are discussed, and lists of suggested medicaments and surgical instruments, appliances, and equipment are given. All countries with more than coastal shipping trade are urged to prepare comprehensive, standard, medical guides for the use of medicine chests at sea, if they do not already possess such guides.

LOCAL ANALGESIA

Local Analgesia Head and Neck. By Sir Robert Macintosh, D.M., F.R.C.S. (Edin.), F.F.A.R.C.S., M.D. (hon. causa), and Mary Ostlere, M.B., M.R.C.P.E., F.F.A.R.C.S. Pp. 138 + vii, with 145 illustrations. 27s. 6d. Edinburgh and London: E. & S. Livingstone Ltd. 1955.

Contents: I. Anatomy: 1. The Trigeminal Nerve. 2. The Facial Nerve. 3. The Glossopharyngeal, Vagus, Accessory, and Hypoglossal Nerves. 4. The Cervical Plexus. 5. The Autonomic Nervous System in the Head and Neck. 6. The Cul-

aneous Innervation. 7. The Orbit and the Eye. 8. The Nasal Cavity and Paranasal Sinuses. 9. The Mouth. 10. The Tonsil. *II. Technique.* 11. General Considerations. 12. Analgesia for Surgery of the Nose and Air Sinuses. 13. Analgesia for Tonsillectomy. 14. Analgesia for Laryngology. 15. Analgesia for Dental Surgery. 16. Analgesia for Ophthalmic Operations. 17. Analgesia of the Superficial Tissues. 18. Stellate Ganglion Block. Index.

In keeping with the traditions of its University, the Nuffield Department of Anaesthetics at Oxford has always emphasized simplicity. In this monograph the considerable contributions which simple local analgesic techniques can make to successful surgery of the head and neck are described.

Professor Macintosh and Dr. Mary Ostlere have devoted more than half their book to a vividly illustrated description of the anatomy which must be understood before adequate local analgesia about the head and neck can be practised. The profuse use of excellent illustrations considerably simplifies their exposition and it is remarkable that the publishers have been able to offer so much of quality for a not unreasonable price.

The monograph lacks perhaps the broader approach to the general considerations of local analgesia. The use of reassurance and of sedation, and the insistence upon an adequate interval of time to enable full analgesia to develop before commencing surgery, are simple but essential rules which could well have been added to Chapter XI. The technique for bronchoscopy 'on an unconscious, unresisting subject', described on page 108, is perhaps also open to criticism by those who are conscious of the flight of time when one is fully occupied. While 90 seconds of apnoea may not seriously reduce available oxygen reserves in the patient, this brief period will allow the carbon-dioxide tension in the tissues to double in value.

Nevertheless the book is a scholarly contribution to the literature on anaesthesia and should adorn the shelves of every anaesthetist's library, as it adorns the reputation of authors, publishers and University alike.

C.S.J.

EXPERT COMMITTEE ON DRUGS LIABLE TO PRODUCE ADDICTION

Expert Committee on Drugs Liable to Produce Addiction. Sixth Report. World Health Organization: Technical Report Series, 1956, *No.* 102, 21 pages. Price 1s. 9d. Published in English, French and Spanish. Local Sales Agent: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724, Pretoria.

Contents: Report on the tenth session of the Commission on Narcotic Drugs of the United Nations Economic and Social Council. 2. Resolutions of the United Nations Economic and Social Council. 3. Morphine and its derivatives. 4. Papaverine. 5. Synthetic substances with morphine-like effect. 6. List of the narcotic drugs under international control. 7. Abuse of amphetamine. 8. Pethidine. 9. International non-Proprietary names. Annex. The amphetamine problem in Japan.

In the sixth report of the WHO Expert Committee on Drugs Liable to Produce Addiction, it is recommended that the following synthetic substances with morphine-like effect be considered addiction-producing drugs and therefore subjected to the relevant controls: 3-hydroxy-N-phenethylmorphinan, 4-morpholino-2, 2-diphenyl ethyl butyrate, 4- dimethylamino-1, 2-diphenyl-3-methyl-2-propionoxybutane, 3-diethylamino-1, 1-di-(2'-thienyl)-1-butene (diethylthiambutene), and 1,3-dimethyl-4-phenyl-4-propionoxyhexamethyleneimine. However, (—)-hydroxy-N-allymorphinan (levallorphan) and certain related compounds are not to be regarded as addiction-producing. The report points out that the myristyl ester of benzylmorphine, although it possesses no addiction-producing liability in itself, constitutes a public-health hazard because of its ready convertibility into benzylmorphine.

It is noted in the report that the world licit production of diacetylmorphine (heroin) has shrunk from 839 kg in 1948 to 132 kg in 1954, and that, of the 20 States which have supplied estimates for this substance for 1956, only 4 are not prepared to suppress its licit medical use. It is concluded that more and more physicians are now finding it possible to substitute less dangerous drugs for heroin.

Also considered in this report are the abuse of amphetamine in various areas, a matter which is as yet one for local rather than international action, and the use of pethidine, which is complicated by the fact that this drug is marketed under a variety of names, so that the physician is not always aware of the drug with which he is dealing and of the consequent dangers. The latter problem, the report points out, emphasizes the importance of identifying each new drug by its recommended or proposed international non-proprietary name.

A HUNDRED YEARS OF NURSING

A Hundred Years of Nursing. By Sir Zachary Cope. Pp. 144. 10s. 6d. net. London: William Heinemann — Medical Books-Ltd. 1955.

Contents: Preface. I. The Background. II. St. Mary's Hospital, Working with Untrained Staff, 1851-1867. III. Steps Toward Training, 1867-1876. IV. The Birth of the Training School. V. Discord. VI. Peaceful Development. VII. The Turning Point, 1906-1913. VIII. Years of Change, 1913-1928. IX. A New Era, 1928-1949. X. The New Health Service, 1949-1955. XI. The Nursing Staff. References to Publications. Index.

It is seldom that I have enjoyed reading a book on the history of nursing as much as I have appreciated this. Sir Zachary's long association with St. Mary's gives a personal touch which adds to the charm of his writing: I am sure that all who have links with St. Mary's will welcome this pleasant reading. But, although the author deals with St. Mary's Hospital mainly, the reader is able, in the more intimate setting of a famous hospital, to get an over-all picture of the progress of hospital nursing.

A.H.T.

FEMALE SEX LIFE

A Psychosomatic Medicine Monograph. Maternal Emotions. A Study of Woman's Feelings Toward Menstruation, Pregnancy, Childbirth, Breast Feeding, Infant Care and Other Aspects of their Femininity. By Niles Newton, Ph.D. Pp. 140 + xi. $3.00. New York: Paul B. Hoeber, Inc. 1955.

Contents: 1. The Problem. 2. Research Methods. 3. Women's Feelings About Menstruation. 4. Women's Feelings About Pregnancy. 5. Women's Feelings About Childbirth. 6. Women's Feelings About Breast Feeding. 7. Women's Feelings About Care of Their Babies. 8. Women's Envy of Men. 9. Sexual Intercourse: Its Relation to the Rest of Women's Sexual Role. 10. Biological Femininity versus Cultural Femininity. 11. Conclusions. Appendices. Index

The author has sought to analyse and record the varying emotions of womanhood and inevitably deals with them in their relation to her basic sex factors. A glance at the chapter titles above will show how he has divided and classified them.

The method he has employed is first to deal with established facts as set out in published works of medical, psychological and sociological research and to review and record the findings; and secondly to undertake a planned research project to give information on the basic questions before him.

This was done by the study of a normal healthy group of child-bearing women. His conclusions will be of interest to those who deal with women and may help them to understand them better

A.H.T.

CORRESPONDENCE : BRIEWERUBRIEK

LAMELLAR SCLERAL RESECTION

To the Editor: It is pleasing to read Mr. W. J. Levy's comments[1] on Mr. L. Staz's article[2] on scleral resection. It is gratifying to know that South African ophthalmology does stir some interest overseas. However, I wish to make a few comments on Mr. Levy's comments.

Not to diathermize a retinal tear because it is included in the area of the sclerectomy but, apparently, to rely on the potassium hydroxide and sclerectomy reaction to seal the tear is to court failure. As the sclera is buckled, the choroid and retina are similarly folded. A reaction at the base of such a fold will indirectly seal the retinal tear, and all is well. However, I have not infrequently seen the retina fold in a meridional direction as well as the usual coronal plane of the sclerectomy. In such a case, it is possible for a sub-retinal channel to form, from the region of the

tear, to areas of the retina unaffected by the potassium hydroxide and general traumatic reaction.

It is generally recognized that, when draining the sub-retinal fluid, it is undesirable to injure or perforate the retina as well. There is no reason, however, why catholysis is better than, say, careful diathermy perforation or, for that matter, as I once saw done by an American colleague, literally scratching a hole through sclera and choroid.

I have been using injections of air into the vitreous for retinal detachment, on and off since 1943. I have not considered there is any need to sterilize the air, nor have any of these cases gone septic. To autoclave a syringe-full of air seems a rather elaborate procedure, but I wonder whether I have perchance been remiss in not taking more care. On clinical grounds, however, it seems unnecessary when one thinks of all the artificial pneumotharaces, encephalograms and ventriculograms that have been done with ordinary air, or at best, air aspirated through a sterile swab of wool. However, if for any reason (e.g. theatre personnel with colds) one wishes to sterilize the air to be injected, a simple method is to draw the air through a long needle, the centre of which is brought to red heat over a spirit lamp.

As a means of distending the globe when it is too soft and lacking in contour after the sclerectomy the air is very useful, but normal saline can be used just as well, and one can still observe the fundus, which the use of air precludes. It has been stated that saline is rapidly absorbed. However, from my own observations I am satisfied it is as effective as air in restoring and maintaining a normal intra-ocular pressure until choroido-retinal adhesions have formed. Nor do I consider that air has any better splinting properties. On the other hand, I have seen a bubble of air pass through the retinal tear into the sub-retinal space, and so prevent the retina from returning to its bed.

A better way to restore a relatively normal contour and intra-ocular tension is to continue, within reason, with the scleral resection until the reduced volume of the eye achieves this result. Granted, this is difficult with the lamellar type of resection but, with the full-thickness scleral-overlap technique that I have developed since 1950, it is a relatively simple and safe procedure. A paper on this method is being prepared for publication in the near future.

E. Epstein

409-410 Medical Centre
Jeppe Street
Johannesburg
22 June 1956

1. Levy, W. J. (1956): S. Afr. Med. J., **30,** 527.
2. Staz, L. (1956): *Ibid.*, **30,** 316.

EFFECTS OF RADIO-ACTIVITY ON WORKERS

To the Editor: In your issue of 12 May 1956 there is an article by Eklund and Shedrow[1] on the effect of radio-activity on workers in the uranium mines which bring many points of interest to light.

It is stated that at various places at Mavuzi radio-active intensities varied up to 300 times background. Presumably these measurements were done on a scintillometer type 939, and I should like to learn how this range could be measured, since the normal background in a radiation-free area is approximately 20-30 c.p.s. and the maximum range of the instrument is approximately 6,000 c.p.s. It would be of further interest if the writers of the article could provide radiation readings in mr.p.h.

The normal background in a radiation-free area varies between ·01 and ·015 mr. p.h. and, taking the maximum of 300 times this, the actual radiation level in the worst parts would be about 3-4·5 mr.p.h. Where this is of great interest is that workers in other radio-active hazards normally consider that 6·25 mr.p.h. is fairly safe for continuous 8 hours working per day, provided always that not more than 300 mr.p.week (British standards) or 500 mr.p.week (American standards) are received; and indeed these figures are considered to have a fairly large saftey factor.

There are of course many people who are exceptionally sensitive to radio-activity, and it would be of great interest if some accurate Ionization Chamber type instrument, which does measure in mr.p.h., could be taken down to the areas concerned to determine the safe working levels.

The chief hazard in this type of mining would appear to be the ingestion of radio-active dust, and presumably all precautions are being taken to reduce the dust level. We do not feel, however, that in such areas as described the neutron flux is of any appreciable importance whatsoever.

We should like to correct the statement on page 455 that the maximum permissible is 0·05 r. per day. This does not appear to be accurate and we would repeat that the factor is considered to be 100 mr. per day, or 0·1 r., and in all the considered safety factor on this is a factor of 2-3.

In the cases mentioned by the writer there appear to be a few anomalies. Case 1 would appear to be normal radiation-sickness, although this should be specified as to number of hours worked per day and what the radiation field strength was. Cases 2 and 3 do not require comment. In case 4, in view of the added complications of malaria and arthritis, it is difficult to attribute the leukaemia to radiation, but the question is extremely open. Case 5 would appear to have nothing whatsoever to do with radio-activity, and this case raises the question whether a large amount of this illness may not be due to deficiencies of vitamins, especially of vitamin C, caused by the shortage of fresh fruit and vegetables down there. Case 6: No comment. Case 7 appears to have absolutely no bearing on the subject of radio-activity. Case 8 appears to be a genuine case of radiation sickness. Case 9 is very peculiar, and the added complication of the scorpion sting would not make diagnosis any easier. Case 10: It is quite feasible that anyone working at a temperature of 105°F and 85% humidity would fall down unconscious and vomit; this is a common exhaustion condition.

Under 'discussion' it is stated that 'although radiation is easily measured it is difficult to get reasonable uniformity when these measurements are made in diverse ways and places'. We do not feel that this is so; Ionization Chamber instruments for measuring field strength will give uniform and accurate readings of field strengths, and in fact most instruments are calibrated on radium standards which would give exactly the right conditions for the particular mine in question. The C.S.I.R. or various industrial X-ray firms, especially those with nucleonic activities, would be only too happy to cooperate with any people wishing to study the effects of radiation in various places and to carry out thorough measurements where necessary.

D. Lurie
Manager

Nucleonics Division
Protea Holdings Limited
P.O. Box 7793
Johannesburg
1. Eklund, S. O. and Shedrow, A. (1956): **30,** 453.

'INYANGA' 1956

To the Editor: This year we are celebrating the 25th anniversary of the Cape Town Medical School Journal *Inyanga* which, we are proud to relate, is one of a handful of journals produced exclusively by medical students.

Past editors and past contributors as well as past students of the medical school are scattered throughout South Africa and through the medium of your columns I should like to make a few requests.

We need a new cover design and invite suggestions from past students for a suitable theme and lay-out.

The Editors intend writing an article on all the journals produced at the medical school. Unfortunately some of the older editions are missing from the Medical School library. We would be very glad to receive copies of the 1921 *Cathartic* and the 1940 *Retina*. Anecdotes about the various journals and their origin would be welcomed.

We are contemplating a short History of the Cape Town Medical School. Our knowledge is poor and very scanty. I am sure that most practitioners will be able to tell us interesting stories about the medical school during their time. We shall be very grateful for the loan of any old photographs suitable for reproduction.

And, finally, I am certain that most ex-students would like to receive a copy of the Jubilee number. Our printing is limited, but advance orders can be placed with the Circulation Manager, c/o Medical Residence, Observatory, Cape, before 15 August (price 3s. including postage).

M. S. Gotsman
Chief Editor

T45 Medical Residence
Medical School
Observatory, Cape
2 July 1956